Aside from the official program there was a [illegible]
discussion of questions in the investigation of near-[illegible]
processes.

The following Sixth Conference on Low-Temperature [illegible]
Generators, is to be held in 1974 in France.

USSR

UDC 576.858.098.396.332.095.38

URYVAYEV, L. V., SOKOLOVA, T. M., YERSHOV, F. I., and ZHDANOV, V. M., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, Moscow

"A Study of the Phenomenon of Complexing Between Viral RNA and Cell Proteins"

Moscow, Voprosy Virusologii, No 6, Nov/Dec 72, pp 670-676

Abstract: Physicochemical properties of chick embryo fibroblast proteins complexing with Venezuelan equine encephalomyelitis virus RNA were studied. Complexing activity between protein, isolated in a DEAE-cellulose column at pH 6.8 and not sedimenting upon 105,000 g centrifugation, and labeled viral RNA was judged by the degree to which RNA was arrested by a millipore filter. Three classes of proteins (12S, 9S, and 6-4.5S) with differing complexing activity were separated on a sucrose gradient. Ionic strength of the medium apparently has an effect on complexing activity: Increasing the NaCl concentration from 0.01-0.1M to 0.5-1M considerably reduces sorption of viral RNA. It was also shown that RNA sorption decreases as the protein concentration is decreased. Moreover increasing the RNA: protein weight ratio from 1:6 to 1:1.5 caused a drop in ribonucleoprotein sedimentation constant from 85S to 57S. The heavier viral RNA coincided with the peak of maximum infectivity. It is suggested that high ionic strength causes viral RNA to form compact units that 1/2

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URYVAYEV, L. V., et al., Voprosy Virusologii, No 6, Nov/Dec 72, pp 670-676

cannot react readily with protein. Though the biological significance of RNA: protein complexing remains unclear, the fact that such complexes arise in isotonic media suggest that such structures exist in infected cells. The relationship between the weight increase of viral RNA and the quantity of protein available suggests that when protein is low in quantity it distributes itself uniformly among all RNA molecules, and RNA sedimentation rate does not increase noticeably.

USSR

UDC 576.858.6.083.35.07

ZHDANOV, V. M., BYKOVSKIY, A. F., AL'TSHTEYN, A. D., LOZINSKIY, T. F., URYVAYEV, L. V., VOLKOVA, M. L., YERSHOV, F. I., IL'IN, K. V., BEKTEMIROV, T. A., IRLIN, I. S., MILLER, G. G., ZAKHAROVA, L. G., PEREKREST, V. V., GERASINA, S. F., and SEVAST'YANOVA, M. V., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, and the Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Moscow

"Detection of Oncornaviruses in Continuous Tissue Cultures"

Moscow, Voprosy Virusologii, No 4, 1973, pp 411-414

Abstract: Studies were conducted on a number of human and animal continuous tissue cultures maintained in medium 199 containing 10% bovine serum to determine oncornaviruses. Formation of oncornaviruses in the tissue cultures were followed by the appearance of virtal particles in the culture fluid labeled with H^3-uridine, susceptibility of their synthesis to low actinomycin D concentrations, appearance of these particles following inhibition of nuclear material synthesis by bromodeoxyuridine or mitomycin, presence of reverse transcriptase in these particles, presence of 60-70 S RNA in these particles, and electron microscopy. Of the 26 human lines investigated 14 contained type B oncornavirus, and 4 lines type C virus. Eight of the

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(11)

ZHDANOV, V. M., et al., Voprosy Virusologii, No 4, 1973, pp 411-414

14 animal lines studies also showed the presence of oncornaviruses. The source of these viruses in the human lines remains unclear, but the source may have been bovine serum or porcine trypsin used in the preparation of cell suspension. It is noteworthy that type B viruses were isolated in human cultures of epithelial origin, while type C viruses in human cultures of leukotic or sarcomatous origin.

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USSR

UDC 578.6

YERSHOV, F. I., BYKOVSKIY, A. F., URYVAYEV, L. V., SOKOLOVA, T. M., and ZHDANOV, V. M., Member Academy of Medical Sciences USSR, Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, Moscow

"The Morphology of Hybrid Ribonucleoprotein Complexes (Pseudoviruses)"

Moscow, Doklady Akademii Nauk SSSR, Vol 210, No 5, 1973, pp 1206-1207

Abstract: It was established in earlier work by Yershov et al (DAN SSSR, Vol 189, No 4, 882, 1969) that addition of the infectious RNA of the virus of Venezuelan equine encephalomyelitis to the fraction S 105 of the hyaloplasm of chick embryo fibroblasts results in the formation of hybrid ribonucleoprotein (RNP) complexes (pseudoviruses) that consist of the virus RNA and cell proteins and differ from the virion RNP in regard to their sedimentation distribution and floating density. They are insensitive to the action of antivirus antibodies, but at the same time exhibit infectious activity. In the work reported at present, the morphology of the pseudoviruses in question was studied by electron microscopy. It was established that the optimum ratio for the formation of the RNP complexes was 400 gamma virus RNA to 1.6 mg protein. On purification of the RNP complexes (pseudoviruses) by centrifuging in a 10-30% density gradient of sucrose dissolved

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USSR

YERSHOV, F. I., et al., Doklady Akademii Nauk SSSR, Vol 210, No 5, 1973, pp 1206-1207

in an isotonic phosphate buffer (0.1 M NaCl, 0.01 M phosphate buffer, pH 7.2) the fraction corresponding to the peak of RNP complexes (80 S) was collected and studied by means of an electron microscope. Centrifuging in a CsCl gradient was also carried out. Threads with a diameter of 25-30 Å and bundles of these threads were observed. The hybrid pseudovirus complexes resembled the virus RNP and differed from informophers in size and shape.

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USSR

UDC 576.858.25.098.396.332

AGABALYAN, A. S., URYVAYEV, L. V., and YERSHOV, F. I., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, Moscow

"Characteristics of Viral RNA of Venezuelan Equine Encephalomyelitis Virus"

Moscow, Voprosy Virusologii, No 4, Jul/Aug 72, pp 490-494

Abstract: The physicochemical properties of viral RNA isolated from Venezuelan equine encephalomyelitis (VEE) virus were studied in comparison to those of other group A arboviruses. RNA was labeled with H^3-uridine and studied spectrophotometrically. The RNA formed a single peak in a sucrose gradient with a sedimentation constant of 38-40S. This peak was sensitive to RNA-ase, and its maximum infectivity coincided with the maximum of radioactivity. Electrophoresis of the RNA in 3.5% agarose-polycarylamide gel indicated that it was homogeneous and pure, and enabled determination of its molecular weight: $4{\cdot}0 \cdot 10^6$-$4.3 \cdot 10^6$ daltons. When fractionated in a cesium sulfate density gradient, the RNA settled in a single zone with density 1.55 gm/cm^3. These findings support previously published evidence that viral RNA is heavier than had been supposed. Differences in other properties between data on VEE virus RNA given here and previously published data on RNA of other A arboviruses are minor and can be attributed to variations in experimental procedures. Thus it is concluded that VEE virus RNA is identical in physicochemical properties to other A arboviruses.

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USSR UDC 576.858

GAYTSKHOKI, V. S., YERSHOV, F. I., KISELEV, O. I., MEN'SHIKH, L. K., ZAYTSEVA, O. V., URYVAYEV, L. V., ZHDANOV, V. M., Member of the Academy of Medical Sciences USSR, and NEYFAKH, S. A., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, Moscow, and Institute of Experimental Medicine, Academy of Medical Sciences USSR, Leningrad

"Reconstruction of the Autonomous Genetic and Protein-Synthesizing System from Virus RNA and Isolated Mitochondria"

Moscow, Doklady Akademii Nauk SSSR, Vol 201, No 1, 1971, pp 220-223

Abstract: In experiments performed on isolated mitochondria of rat liver incubated with H^3-RNA obtained from purified Venezuelan equine encephalomyelitis virus, it was demonstrated that the virus RNA enters the mitochondria and is incorporated into their autonomous system of protein synthesis, for which the mitochondria supply the necessary energy. Transcription of the mitochondrial DNA is inhibited, the virus RNA is replicated, and thus virus proteins are synthesized.

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USSR UDC 576.858.098.396.332.083.1

YERSHOV, F. I., GAYSKHOKI, V. S., KISELEV, O. I., ZAYTSEVA, O. V., MENSHIKH, L. K., URYVAYEV, L. V., MEYFAKH, S. A., and ZBDANOV, V. M., Institute of Virology imeni D. I. Ivanovskiy, USSR Academy of Medical Sciences, Moscow, Institute of Experimental Medicine, USSR Academy of Medical Sciences, Leningrad

"Replication of Infectious Viral RNA in Isolated Mitochondria. Report II: Replication of Viral RNA in Mitochondria and Characteristics of the Final Product"

Moscow, Voprosy Virusologii, No 3, May/Jun 71, pp 274-280

Abstract: It was of interest to establish whether isolated mitochondria could replicate virus RNA, that is whether "bacterial" ribosomes could synthesize the functionally active RNA polymerase, and whether the final product of virus-specific synthesis has infectious properties. ID-RNA isolated from purified Venezuelan equine encephalitis virus was used to study the function of virus RNA emerging in mitochondria. Contact between mitochondria and RNA was 30 minutes at 0°C. After this, the mitochondria were incubated under aerobic conditions for 2 hours at 37°C. After termination of the incubation period, RNA was separated by the phenol deproteinizing method and analyzed in a sucrose density gradient (5-30%). Peaks were found in the 40S and 26-20S region. The 40S area corresponds to RNA-ase and the 26-20S area to ribonu-

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YERSHOV, F. I., et al., Voprosy Virusologii, No 3, May/Jun 71, pp 274-280

clease-resistant material, the replicative form of viral RNA. The data obtained indicate that the predominant portion of viral RNA appearing in mitochondria does not participate in the replication process and its dehydration products show up in the top zone of the gradient. No radioactive products of mitochondrial RNA translation were detected, which can be explained by the effective concentration of actinomycin D. As the newly synthesized RNA forms complexes with proteins, infectious activity increases. The complexes formed have subcellular structures and are separated from infected cells.

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Immunology

USSR

UDC 576.858.25.097.2

URYVAYEV, L. V., CHEPULIS, G.-K., DERKACH, Yu. S., ZHDANOV, V. M., and YERSHOV, F. I., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR

"Protein Components and Antigens of Venezuelan Equine Encephalomyelitis Virus"

Moscow, Voprosy Virusologii, No 5, 1971, pp 586-589

Abstract: The protein composition of highly purified Venezuelan equine encephalomyelitis virus was studied by electrophoresis in polyacrylamide gel and by double diffusion in agar. Both methods revealed the presence in the virus particles of three virus-specific proteins with antigenic properties.

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USSR

YEMEL'YANOV, B. A. and URYVAYEV, L. V., Institute of Virology imeni D. I. Ivanovskiy, USSR Academy of Medical Sciences, Moscow

"Study of the Mechanism of Induction of Interferon and Its Effect in Arbovirus Infection of a Tissue Culture"

Moscow, Voprosy Virusologii, No 3, May/Jun 1971, pp 333-339

Abstract: Group B arboviruses are among the viruses which can induce interferon synthesis in tissue cultures infected by them. St. Louis encephalitis virus is a good inducer for interferon which enters the medium at the beginning of the logarithmic growth stage of the extracellular virus and is produced by the cells a long time after the infection. The dynamics of virus accumulation and interferon formation was studied. The reproduction cycle of the virus was found to be comparatively long, and interferon formed in the medium by the end of the latent period, so that its presence could have an effect on the further course of the infection (particularly on a multicycle process). The effect of exogenous interferon on reproduction and the interferon-generating activity of St. Louis encephalitis virus was studied also. It was found that previous contact of the cells with interferon almost

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YEMEL'YANOV, B. A., et al, Voprosy Virusologii, No 3, May/Jun 71, pp 333-339

completely suppresses reproduction of the virus. However, the production of newly formed endogenous interferon was not prevented. This was confirmed by the fact that after treatment with interferon, the control culture was not infected by the virus. The production of endogenous interferon was inversely proportional to the degree of cellular resistance to the activity of the virus, which in turn was directly proportional to the activity of the exogenous interferon used for preliminary treatment of the cells. The time for the production of m-RNA for interferon was determined by the actinomycin D method. It was found that protein synthesis has to precede the early stages of St. Louis encephalitis virus production for the formation of interferon-specific m-RNA. Initial processes of viral RNA replication are necessary for interferon production in infected cells since the parent RNA presumably cannot induce interferon synthesis.

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USSR

UDC 576.858.25.098.396.332:576.858.25.097.21

YERSHOV, F. I., URYVAYEV, L. V., and ZHDANOV, V. M., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, Moscow

"Synthesis of Infectious Ribonucleoprotein of Arboviruses in Subcellular Structures"

Moscow, Voprosy Virusologii, No 3, May/Jun 70, pp 322-330

Abstract: A mitochondrial-microsomal (MM) fraction isolated from chick fibroblasts infected with Venezuelan equine encephalomyelitis virus (VEE) and incubated in medium 199 ensures extracellular synthesis of virus-specific RNA and protein and the formation of ribonucleoprotein complexes (RNP). These complexes possess infectious activity, which increases 80-100-fold in 3-4 hours of incubation. The RNP complexes contain the infectious RNA, which may be associated both with the virus-specific and the cellular proteins. The main part of the infectious RNA is formed extracellularly and not because of completion of the templates derived from cells together with the MM fraction.

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USSR

UDC 576.858.25.095.383.098

ZHDANOV, V. M., YERSHOV, F. I., and URYVAYEV, L. V., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, Moscow

"Virus-Like Particles Formed in vivo and in vitro"

Moscow, Voprosy Virusologii, No 5, Sep/Oct 70, pp 537-543

Abstract: It was shown that ribonucleoprotein complexes capable of producing infections and typical plaques in agar were formed in the mitochondrial fraction isolated from cells infected with Venezuelan equine encephalomyelitis (VEE) virus during incubation in proper media. Sedimentation constants of these complexes in a linear sucrose gradient ranged from 80S and 160S. Their buoyant density in Cs gradient varied from 1.30 to 1.42 g/cm^3. Virus-like particles ("pseudoviruses") with similar characteristics were found after addition of the infectious RNA of VEE virus to homogenate of uninfected cells. These particles were partially resistant to ribonuclease and could not be neutralized by virus-specific sera. It is proposed that the formation of virus-like particles in vivo and in vitro is based on some complexing between viral RNA and cell proteins, in which case it is possible that formation of informosome-type structures may occur.

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USSR

UDC 576.858.25

URYVAYEV, L. V., ZHDANOV, V. M., YERSHOV, F. I., CHERNETSOV, Yu. V., and BUKOVSKIY, A. F., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences

"Sedimentation Characteristics of Venezuelan Equine Encephalomyelitis (VEE) Virus"

Moscow, Voprosy Virusologii, No 3, May/Jun 70, pp 330-336

Abstract: VEE virus was cultured in chick embryo fibroblasts, concentrated and purified. The optimum method for obtaining biologically active virus components consisted of destroying the virus with ether and Tween. Purified VEE virus sedimented at about 380 S in sucrose gradients, the nuclei at about 160 S. Centrifugation in CsCl gradients showed that VEE infectious material bands in two main positions: most of the virus banded at 1.25 g/ml, and a smaller amount at 1.42 g/ml. The main peak of hemagglutinins was detected at a buoyant density of 1.25 g/ml.

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1/2 016 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--SYNTHESIS OF INFECTIOUS RIBONUCLEOPROTEIN OF ARBOVIRUS IN SUBCELLULAR STRUCTURES -U-

AUTHOR-(03)-YERSHOV, F.I., URYVAYEV, L.V., ZHDANOV, V.M.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY VIRUSOLOGII, 1970, NR 3, PP 322-330

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ARBOVIRUS, VENEZUELAN EQUINE ENCEPHALITIS VIRUS, RNA, CULTURE MEDIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1847

STEP NO--UR/0402/70/000/003/0322/0330

CIRC ACCESSION NO--AP0125458

UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125458

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MITOCHONDRIAL MICROSOMAL (MM) FRACTION ISOLATED FROM CHICK FIBROBLASTS INFECTED WITH VENEZUELAN EQUINE ENCEPHALOMYELITIS VIRUS (VEE) AND INCUBATED IN MEDIUM 199 INSURES EXTRACELLULAR SYNTHESIS OF VIRUS SPECIFIC RNA AND PROTEINS AND FORMATION OF RIBONUCLEOPRITEIN (RNP) COMPLEXES. THESE COMPLEXES POSSESS INFECTIOUS ACTIVITY WHICH INCREASES 80-100 FOLD IN 3-4 HOURS OF INCUBATION. THE RNP COMPLEXES CONTAIN INFECTIOUS RNA WHICH MAY BE ASSOCIATED BOTH WITH VIRUSSPECIFIC AND CELLULAR PROTEINS. THE MAIN PART OF THE INFECTIOUS RNA IS FORMED EXTRACELLULARLY AND NOT AT THE EXPENSE OF COMPLETION OF TEMPLATES DERIVED FROM THE CELLS TOGETHER WITH MM FRACTION. FACILITY: INSTITUT VIRUSOLOGII IMENI D. I. IVANOVSKOGO AMN SSSR, MOSKVA.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--SEDIMENTATION CHARACTERISTICS OF VENEZUELAN EQUINE ENCEPHALOMYELITIS VIRUS -U-

AUTHOR-(05)-URYVAYEV, L.V., ZHDANOV, V.M., YERSHOV, F.I., CHERNETSOV, YU.V., BYKOVSKIY, A.F.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY VIRUSOLOGII, 1970, NR 3, PP 330-336

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--VENEZUELAN EQUINE ENCEPHALITIS VIRUS, TISSUE CULTURE, SEDIMENTATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1836 STEP NO--UR/0402/70/000/003/0330/0336

CIRC ACCESSION NO--AP0125447

UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125447

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE VEE VIRUS WAS PROPAGATED IN CHICK EMBRYO CELLS, CONCENTRATED AND PURIFIED. THE OPTIMAL METHOD FOR OBTAINING BIOLOGICALLY ACTIVE VIRUS COMPONENTS CONSISTED IN DEGRADATION OF THE VIRUS WITH ETHER TWEEN. THE PURIFIED VEE VIRUS SEDIMENTED AT ABOUT 380 S IN SUCROSE GRADIENTS, THE NUCLEOID AT ABOUT 160 S. CENTRIFUGATION IN CSCL GRADIENTS SHOWED THE VEE INFECTIOUS MATERIAL TO BAND IN TWO MAIN POSITION: MOST OF THE VIRUS BANDED AT 1.25 G-ML, AND A SMALLER AMOUNT AT 1.42 G-ML. THE MAIN PEAK OF HEMAGGLUTININS WAS DETECTED AT A BUOYANT DENSITY OF 1.25 G-ML. THE SITE OF VIRUS AND ITS COMPONENTS WAS DETERMINED BY RADIOLOGICAL AND BIOLOGICAL TESTS.

FACILITY: INSTITUT VIRUSOLOGII IMENI D. I. IVANKOGO AMN SSR, MOSKVA.

UNCLASSIFIED

UDC: 576.858

USSR

YERSHOV, F.I., URYVAYEV, L.V., and ZHDANOV, V.M., Academician, Academy of Medical Sciences USSR Institute of Virology imeni D.I. Ivanovskiy, Academy of Medical Sciences USSR

"Synthesis of Arbovirus RNA and Proteins in Subcellular Structures"

Moscow, Doklady Akademii Nauk, Vol 190, No 2, 1970, pp 458-460

Abstract: A fraction containing the subcellular structures (SS-15) was extracted from chick fibroblasts infected with Venezuelan equine encephalomyelitis virus and from intact cells. The fraction was diluted (1:10) with medium 199, and incubated for 1-2 hours at 37°C, after which H^3-uridine and a C^{14}-amino acid mixture were added. After rapid chilling, the SS-15 fraction and accompanying products were centrifuged (1500 g) and analyzed in a sucrose density gradient. Supernatants of the infected cells contained a product with a sedimentation constant of 40S, and lighter, slower settling products in the form of RNA and polypeptides, whereas supernatants of the noninfected cells contained only the lighter products. After gradient centrifugation of the SS-15 fractions isolated from infected and noninfected cells, nucleic and protein tags were found in the form of two peaks one of which was linked to the structures, while the other apeared in the lighter part of the gradient. It was concluded that subcellular structures consisting of cytoplasmatic membranes with ribonsomes and mitochondria are a convenient model for studying virus-induced synthesis.

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UDC 576.558

USSR

YERSHOV, F. I., URYVAYEV, L. V., and ZHDANOV, V. M., Active Member, Academy of Medical Sciences USSR and DRYNOV, I. D., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences, Moscow

"Cytochemical Analysis of Structures Isolated from Cells Infected with Arbovirus"

Moscow, Doklady Akademii Nauk SSSR, Vol 190, No 1, Jan/Feb 70, pp 212-213

Abstract: The morphological characteristics of fraction CC-15, isolated from chick embryo fibroblasts infected with Venezuelan equine encephalomyelitis virus, were studied with the help of phase contrast and fluorescence microscopy. Chick embryo fibroblasts and cells obtained three hours after infection with massive doses of the virus were disintegrated in a homogenator, and the nuclei, debris, and whole remaining cells were centrifuged for 10 minutes. The CC-15 fraction was obtained by the subsequent centrifugation of the homogenate, suspension in 199 medium, and straining with acridine orange, phosphine 3P, and homologous antibodies labelled with fluorescein isothiocyanate. Part of the preparation were stained with Janus green, or prered by

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YERSHOV, F. I., et al., Moscow, Doklady Akademii Nauk SSSR, Vol 190, No 1, Jan/Feb 70, pp 212-213

by the crushed drop method and studied by means of phase contrast microscopy. Examinations showed that cytoplasmic RNA of whole cells stained with acridine orange fluoresced ruby-red, while the RNA of the nucleoli -- brick-red, and DNA of the nuclei -- emerald-green. Phosphine 3P produced a greenish-brown color in the cytoplasm and a dark-brown color in the cell nuclei. Fluorescence microscopy of the debris and and nuclei obtained after homogenation showed large conglomerates of cytoplasm which were ruby-red. Fraction CC-15 stained with acridine orange revealed under phase contrast microscopy a mass of ruby-red granules scattered through the entire field of vision. When stained with phosphine 3P -- single brightly fluorescing lipid granules were observed. A considerable increase in the number of lipid granules was noted when the CC-15 fraction from infected cells was studied by fluorescence microscopy. The presence of a specific virus antigen was observed in the CC-15 fraction treated with fluorescein isothiocyanate. Scattered mitochondria were observed throughout the cytoplasmic network of fraction CC-15 preparations stained with Janus green.

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1/2 007 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--ON THE SYNTHESIS OF C SUB5 A SUB3 IN PRESENCE OF CR SUB2 O SUB3 -U-

AUTHOR-(03)-MASILY, YE.N., URYVAYOVA, G.D., LOGVINENKO, A.T.

COUNTRY OF INFO--USSR

SOURCE--IZVESTIYA SIBIRSKOGO OTDELENIYA AKADEMII NAUK SSSR, NO 4, SERIYA KHIMICHESKIKH NAUK, 1970, NR 2, PP 168-171

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHROMIUM OXIDE, CHEMICAL SYNTHESIS

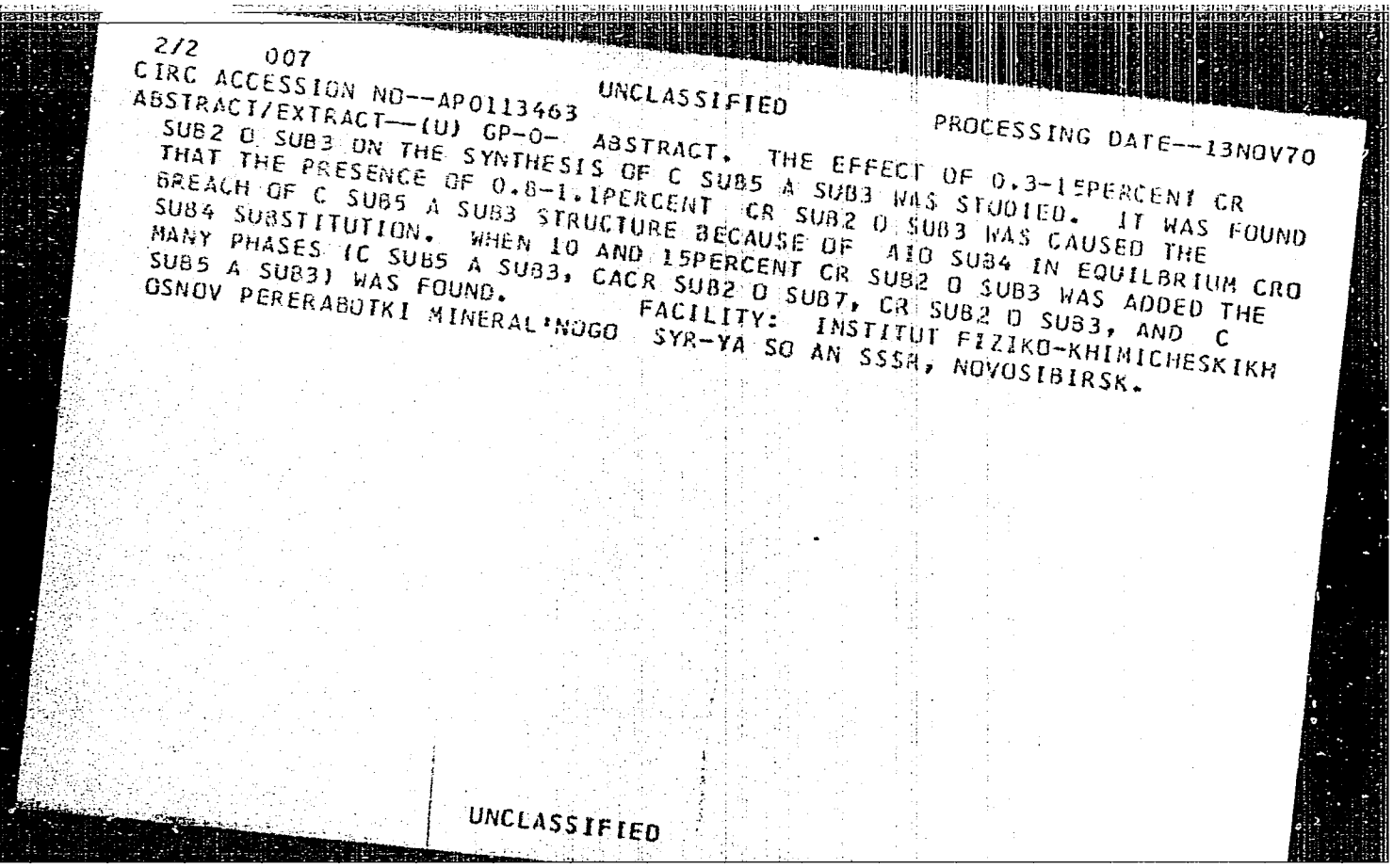
CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/0572 STEP NO--UR/0289/70/000/000/0168/0171

CIRC ACCESSION NO--AP0113463

UNCLASSIFIED



2/2 007 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0113463
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF 0.3-1.5PERCENT CR SUB2 O SUB3 ON THE SYNTHESIS OF C SUB5 A SUB3 WAS STUDIED. IT WAS FOUND THAT THE PRESENCE OF 0.8-1.1PERCENT CR SUB2 O SUB3 WAS CAUSED THE BREACH OF C SUB5 A SUB3 STRUCTURE BECAUSE OF AIO SUB4 IN EQUILBRIUM CRO SUB4 SUBSTITUTION. WHEN 10 AND 15PERCENT CR SUB2 O SUB3 WAS ADDED THE MANY PHASES (C SUB5 A SUB3, CACR SUB2 O SUB7, CR SUB2 O SUB3, AND C SUB5 A SUB3) WAS FOUND.
FACILITY: INSTITUT FIZIKO-KHIMICHESKIKH OSNOV PERERABOTKI MINERAL'NOGO SYR-YA SO AN SSSR, NOVOSIBIRSK.

UNCLASSIFIED

5

UDC 621.9.01.669.018.25

USSR

REZNIKOV, N. I., BURMISTROV, Ye. V., ZHARKOV, I. G., ZYKIN, A. S., KRAVCHENKO, B. A., LENILIN, V. I., MEDVEDEV, L. P., MITRYAYEV, K. F., URYVSKIY, F. P.

"Cutting of Heat-Resistant, High-Strength Titanium Alloys"

Obrabotka Rezaniyem Zharoprochnykh Vysokoprochnykh i Titanovykh Splavov [English Version Above], Moscow, Mashinostroyeniye Press, 1972, 198 pages.

Translation of Foreword: The Twenty-Fourth CPSU Congress defined the main trends in further development of the socialist economy and indicated the necessity of comprehensive acceleration of scientific and technical progress.

One primary trend in the development of the economy is increasing the effectiveness of production. This means that under today's conditions, ever greater significance is being given to increasing the output of products, improving their quality and technical and economic indicators.

Over the past years, the tool industry has solved important problems related to the creation of new tool designs, the development of the production and improvement of tools, as well as mass production of tools of ever stronger high-speed steels. Broad utilization of automated machine tools, continuous and automatic production lines in large-series and mass production requires an increase in the output of cutting tools of long life and

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UDC 621.9.01.669.018.25

USSR

REZNIKOV, N. I., BURMISTROV, Ye. V., et. al., Obrabotka Rezaniyem Zharoprochnykh Vysokoprochnykh i Titanovykh Splavov, Moscow, Mashinostroyeniye Press, 1972, 198 pages.

high accuracy, capable of operating under severe cutting conditions for long periods of time without replacement. Tool life can be increased if the tool industry is provided with high quality steels and alloys. Soviet scientists have created alloys with high strength characteristics and high heat resistance. The workability of alloys and steels can be improved by the use of various methods based on ultrasonics, electric contact and induction heating, application of small electric currents to the cutting zone, etc. These methods allow the life of a cutting tool to be increased by 2 to 5 times, increasing the cutting speed and productivity of processing. Part quality can be improved by using tools of natural and synthetic diamonds, as well as elbor.

The present work familiarizes the reader with research conducted into the physics of the cutting process, materials for cutting tools, optimal cutting modes and methods of improving the quality and workability of parts.

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UDC 621.9.01.669.018.25

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REZNIKOV, N. I., BURMISTROV, Ye. V., et. al., Obrabotka Rezaniyem Zharoprochnykh Vysokoprochnykh i Titanovykh Splavov, Moscow, Mashinostroyeniye Press, 1972, 198 pages.

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UDC 621.9.01.669.018.25

USSR

REZNIKOV, N. I., BURMISTROV, Ye. V., et. al., Obrabotka Rezaniyem Zharoprochnykh Vysokoprochnykh i Titanovykh Splavov, Moscow, Mashinostroyeniye Press, 1972, 198 pages.

USSR UDC 621.9.01.660.018.25

REZNIKOV, N. I., BURMISTROV, Ye. V., et al., Obrabotka Rezaniyem Zharoprochnykh Vysokoprochnykh i Titanovykh Splavov, Moscow, Mashinostroyeniya Press, 1972, 198 pages.

USSR UDC 621.9.01.660.018.25

REZNIKOV, N. I., BURMISTROV, Ye. V., et al., Obrabotka Rezaniyem Zharoprochnykh Vysokoprochnykh i Titanovykh Splavov, Moscow, Mashinostroyeniya Press, 1972, 198 pages.

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USSR

UDC: 621.317.3:[621.315.61+621.315.592]

URYVSKIY, Yu. I., SYNOROV, V. F., CHURIKOV, A. A., POPOV, V. A., KONONOV, V. I., LAVRENT'YEV, K. A., MASLENNIKOV, P. N.

"Ellipsometric Method of Checking Dielectric and Semiconductor Films"

Elektron. prom-st'. Nauch.-tekhn. sb. (The Electronics Industry. Scientific and Technical Collection), 1972, No 2, pp 82-83 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12A393 by A. K.)

Translation: The ellipsometric inspection method is distinguished by high information capacity and resolution: It enables simultaneous measurement of the thickness and index of refraction of the film on a substrate during production with accuracy of up to 1 nm and 0.05 respectively. The method is based on determining the change in parameters of polarized light reflected from the surface being studied.

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URZHUMTSEV, YU. S.

Polymer mechanics

JPRS 52,071
23 May 72

POLYMER MECHANICS

[Article by Doctor of Technical Sciences Yu. S. Urzhumtsev, Moscow, Vestnik Akademii Nauk SSSR, Russian, Vol 42, No 4, April 1972, pp 112-114]

Conference in Riga

The technical application of polymeric materials is connected to a considerable degree with the study of their physical and mechanical properties, which are stipulated by distinctive features of the molecular and supermolecular structure of those substances. The latter fact determines the ability of polymers to withstand loads, which essentially distinguishes them from traditional materials (alloys, concretes, ceramics, etc). This is why the analytical apparatus of classical engineering science, "the resistance of materials," as applied to polymers has undergone substantial modification, and for the theoretical "reinforcement" of that science a narrow-profiled area -- polymer mechanics -- has been separated from the general mechanics of continua. The scientific principles of the resistance of polymeric materials have now been created, and on that basis engineering methods of calculating a broad class of typical polymeric materials have been worked out. Side by side with that, much work has been done on the creation of high-strength composite materials, on the development of a strategy for their rational reinforcement, optimization of technological methods, the development of a theory of deformation and destruction, refinement of methods of calculating structures, and the creation of nondestructive and forecasting (accelerated) methods of testing.

The results of those investigations were discussed at the Second All-Union Conference on Polymer Mechanics, convoked on 10-12 November 1971 in Riga upon the initiative of the Department of Mechanics and Control Processes, the Commission for Polymer Mechanics and Physics, the Scientific Council for "Scientific principles of strength and plasticity" and the Scientific Council for High-Molecular Compounds under the Department of General and Technical Chemistry of the AS USSR and the Institute of Polymer Mechanics of the AS Latvian SSR. Participating in the conference were over 600 specialists representing scientific research, design-technological and production organizations and institutions of higher education of 42 cities of the Soviet Union.

USSR

UDC 541.67:547.26'118

MASTRYUKOVA, T. A., SPIVAK, L. L., GRIGOR'YEVA, A. A., URZHUNTSEVA, Ye. K., and KABACHNIK, M. I., Institute of Organoelemental Compounds, Academy of Sciences USSR, Khar'kov State University

"Ionization Constants of Dithiophosphoric Acids in Absolute Ethanol"

Leningrad, Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 1938-1941

Abstract: Measurements were made of the ionization constants of organic dithiophosphoric acids in absolute ethanol. There exists a linear relationship between the ionization constant values of acids and $\Sigma\sigma_p$ of the substituents at the phosphorus atom. It is shown that the conditions for the solvation of molecules and anions of dithiophosphoric acids in 100% ethanol markedly differ from those in 7 and 80% aqueous ethanol. In switching from 7 to 80% ethanol, ΔpK_a remains constant for all acids under study. In 80 to 100% ethanol, ΔpK_a changes and increases from dialkyldithiophosphoric to dithiophosphonic and dithiophosphinic acids. In the former case, ΔpK_a depends largely on changes in the solvation energy of molecules while in the latter case, it depends on that of ions. The difference in the change of the solvation energy of ions and molecules results from the differentiating action of the solvent on the strength of

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MASTRYUKOVA, T. A., et al., Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 1938-1941

the acids. In the present case alcohols appear to have the highest differentiating action on the strength of dithiophosphoric acid. The difference between the strength of dithiophosphoric acids in alcohol and that in aqueous alcohol is close to 2.5 orders of magnitude.

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USSR UDC 612.82.015.348-06:612.118.24:616.895.8

US, Z. G., and BOZHKO, G. JH., Kharkov Scientific Research Institute of Neurology and Psychiatry

"Effect of Blood Serum From Schizophrenics on the Renewal of Brain Proteins in Rats"

Moscow, Zhurnal Nevropatologii i Psikhiatrii, No 2, 1971, pp 253-255

Translation: Summary: The authors studied theeffect of blood serum from schizophrenics with a continuous (six persons) or remittent (24 persons) course of the disease on therenewal of proteins in the cortex, hypothalamus, cerebellum, and medulla oblongata of white rats. The incorporation of radioactive methionine into the brain proteins was an indicator of this process. Serum from patients in an active stage of the disease was found to lower the level of protein metabolism in the cerebellum, hypothalamus, and cerebral hemispheres of the animals. Serum from patients in dissociated remissions (after A. I. Ploticher) had the same effect. However, serum from patients in associated remissions had no percepetible effect on protein renewal in the areas of the rat brain under study.

It is generally known that serum from schizophrenics, unlike that from healthy persons can markedly alter cell metabolism. This fact is of

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US, Z. G., and BOZHKO, G. KH., Zhurnal Nevropatologii i Psikhiatrii, No 2, 1971, pp 253-255

unquestioned value in elucidating some aspects of the pathogenesis of schizophrenia.

Our purpose was to compare changes in the rate of protein renewal in the rat brain after treatment with serum from schizophrenics in the acute phase of the disease and in remissions.

Blood was taken from 30 schizophrenics and 12 apparently healthy persons. Six of the former had the continuous form of the disease, while 24 had the remittent form. Tweleve of those with the remittent type were examined during an exacerbation and 12 during a remission. Attention was focused on the quality of the remissions, which were assessed according to A. I. Plotticher's classification. Patients in associated (six persons) and dissociated (six persons) remissions were distinguished accordingly.

The rats were injected with the serum intraperitoneally at the rate of 6 ml/kg daily for 3 days. The main group consisted of 42 animals. Eight intact rats served as controls. The effect of the serum was judged from the incorporation of methionine into brain proteins. Radioactive methionine was injected subcutaneously (0.5 microcurie per kg of body weight) simultaneously with serum on day 3, 24 hours before the animals were sacrificed. The incor-

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US, Z. G., and BOZHKO, G. KH., Zhurnal Nevropatologii i Psikhiatrii, No 2, 1971, pp 253-255

poration of methionine into proteins of the hemispheres, cerebellum, medulla oblongata, and hypothalamus was investigated. Radioactivity was expressed in counts per minute per mg of tissue weight. The ratio of the number of counts in the proteins to the radioactivity of methionine not incorporated into proteins served as an indicator of the intensity of protein renewal. The resulting data were statistically processed by the Student-Fisher method.

In the intact animals, the level of methionine incorporation was highest in the hemispheres and cerebellum. Medulla proteins were much less active ($P < 0.01$). This finding is consistent with the literature data which show that protein metabolism is more intense in portions of the brain that have a greater functional load. Methionine incorporation into proteins was also higher in the hypothalamus than in the medulla ($P < 0.05$).

After injection of serum from healthy persons, the activity of proteins in all the portions of the brain studied was virtually indistinguishable (i.e., with respect to the amount of the radioactive lable incorporated) from that of the proteins in the corresponding portions of the brain in the intact animals.

After injection of serum from schizophrenics with a remittent course

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USSR

US, Z. G., and BOZHKO, G. KH., Zhurnal Nevropatologii i Psikhiatrii, No 2, 1971, pp 253-255

in the acute period of the disease, the activity of the hemispheres, cerebellum, and hypothalamus was appreciably less than in the control ($P < 0.05$). The extent of the decrease in these structures was approximately the same (67 to 69%). The activity of proteins in the medulla oblongata, unlike the other regions investigated, was unchanged ($P > 0.3$).

After injection of serum from schizophrenics with a continuous course, incorporation of the labeled precursos into proteins of the hemispheres, cerebellum, and hypothalamus likewise decreased ($P < 0.05$). However, this decrease was sharper in the hemispheres and hypothalamus (47 and 30%, respectively). On the other hand, the activity of proteins in the medulla oblongata remained as before ($P < 0.2$).

Our findings show that serum from schizophrenics in the active stage of the disease can slow the renewal of proteins in the rat cerebellum, hypothalamus, and hemispheres.

Incorporation of the radioactive lable into proteins of the hemispheres, cerebellum, and hypothalamus after treatment with serum from schizophrenics is dissociated remission was distinctly less than in the control ($P < 0.05$), and it scarcely differed from that observed after injection of serum from schizo-

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USSR

US, Z. G., and BOZHKO, G. KH., Zhurnal Nevropatologii i Psikhiatrii, No 2, 1971, pp 253-255

phrenics with the remittent course in the acute stage of the disease ($P<0.4$). After injection of serum from schizophrenics in associated remission, the amount of methionine incorporated into the proteins was the same as in the control. The deviations were not statistically significant ($P>0.4$). These findings show that serum from schizophrenics in dissociated remission differs from serum from schizophrenics in associated remission. These characteristics were discovered from the effect of the serum on protein metabolism in the rat brain.

Thus, serum from schizophrenics with a remittent course in the acute stage of the disease and serum from those with a continuous course lower the level of protein metabolism in the cerebellum, hypothalamus, and hemispheres of rats. Serum from schizophrenics in dissociated remission has the same property.

After injection of serum from schizophrenics in associated remission, the process of protein renewal in the brain areas studied remained unchanged.

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1/2 010 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--SYNTHESIS OF 3,5,DICHLORDACENAPHTHENE -U-

AUTHOR-(02)-PETRENKO, G.P., USACHENKO, V.G.

COUNTRY OF INFO--USSR

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CIRC ACCESSION NO--AP0112403

UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0112403

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NITRATION OF 5,CHLOROACENAPHTHENE (I) GAVE ITS 3,NITRO-DERIV., WHICH WAS REDUCED TO THE 3,AMINO DERIV. DIAZOTIZATION OF THIS, FOLLOWED BY REACTION WITH ZNCL SUB2 IN DIL. HCL SOLN. GAVE THE TITLE COMPD. (I). OXIDN. OF I WITH CRO SUB3-AC SUB2 O GAVE 2,4,DICHLORONAPHTHOIC ANHYDRIDE (II). CATALYTIC VAPOR PHASE OXIDN. OF I WITH AIR AT 480DEGREES GAVE 3,5,DICHLOROACENAPHTHYLENE, WHICH WAS OXIDIZED WITH CRO SUB3-AC SUB2 O TO II, CHLORINATED TO THE 1,2,DI-CL DERIV. OF III, AND BROMINATED TO THE 1,2,DI-BR DERIV. OF III.

UNCLASSIFIED

USSR

UDC 541.45:546.46:6 1.984.5

BOLYNETS, F. K., UDALOVA, L. V., ARANOVSKIY, L. I., and USACHEV, V. P.

"Study of the Kinetics of Compacting of Magnesium Oxide with Added Lithium Fluoride at Various Hot Pressing Temperatures"

Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, Vol 8, No 2, 1972, pp 285-289

Abstract: The kinetics of compacting of magnesium oxide with added lithium fluoride (1.0 wt.%) by hot pressing in the 80-1100° C temperature interval was studied. The addition of lithium fluoride increases the rate of compacting of magnesium oxide beginning at 650° C.

At 850-1050° C, 3 stages of compacting are observed with slopes of kinetic curves in coordinates $\log \Delta L/L_0$ from $\log \tau$ equal to 0.95-1.40; 0.33-0.36; 0.1 respectively to intervals of densities of 0.96-0.97; 0.97-0.995 and over 0.995. Processes of recrystallization of magnesium oxide with the addition of lithium fluoride during hot pressing are studied. The activation energy of the process of recrystallization, equal to 25.7 kcal/mol, is determined from the temperature dependence of the increase in grain size, as 25.7 kcal/mol.

USSR UDC 546.46'21:539.4.016.3

BONDAR', I. A., VOLYNETS, F. K., YDALOVA, L. V., and USACHEV, V. P.,

"Physical and Chemical Processes Involved in Heat Treatment of Polycrystalline Magnesium Oxide"

Moscow, Neorganicheskiye Materialy, Vol 7, No 4, Apr 71, pp 634-637

Abstract: A study was made of the effect of heat treatment of polycrystalline hot pressed specimens of magnesium oxide containing one wt.% lithium fluoride in air at 700-1300°C on density, grain growth, and transparency. During heat treatment, recrystallization occurred, the activation energy of which was 27.3 kcal/mol. Recrystallization during heat treatment was accompanied by a process of recondensation of particles of the dispersed phase. The activation energy of this process, calculated from the dimensions of the dispersed particles in specimens which underwent various heat treatments, was 22.5 kcal/mol. The specimens of polycrystalline magnesium oxide studied were found to have circular formations larger than grains, inclusions comparable in

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BONDAR', I. A., et al., Neorganicheskiye Materialy, Vol 7, No 4, Apr 71, pp 634-637

size to the dispersed particles, and inclusions on grain boundaries and in grain boundaries, the dimensions of which were an order of magnitude less than the dimensions of the grains and vacuum pores.

USACHEV, V.V.

Aerospace Medicine

S0: JPRS 54396
03 NOV 71

NEWS

UDC 613.693:061.22.055.1(47+57)"1970"

WORK OF THE AEROSPACE MEDICINE SECTION OF THE MOSCOW PHYSIOLOGICAL SOCIETY IN 1970

[Article by I. M. Khazen and V. V. Usachev, Moscow, Fiziologicheskiy Zhurnal imeni I. Sechenova, Russian, Vol 5, No 4, pp 87-90, 1971]

The board held seven meetings during the past year and discussed various aspects of the organization and planning of the section's work; particular attention was given to the foundation of an All-Union Society of Aerospace Biology and Medicine. Participants at [illegible] discussed 42 reports on various aspects of aerospace medicine. A report by E. S. Kotova presented extensive experimental data on the further study of the physiological mechanisms of acceleration; taking into account the specific conditions of space flights. The author presented considering data indicating phase changes in vascular tone and also on the caliber of retinal arteries and veins during accelerations. In the immediate aftereffect period the systolic arterial exhibited hypertension which was then replaced by hypotension. The speaker observed vertical phenomena in the form of dilatation of the caliber of retinal veins on the fifth, eighth and eleventh days after the experiment, evidence of a prolonged aftereffect period.

A report by V. I. Zorilo was devoted to studies of the effect of accelerations on the performance of a pilot-operator. In a centrifuge experiment the author employed a combination of systematic procedures adequate for the peculiarities involved in modeling some types of flight activity under ground conditions. This made it possible to obtain interesting data. The most important information obtained by the researchers was that there is a considerable change in the quality of implementation of a mission against a background of exposure to radial and forbits accelerations. The use of motion equipment in a number of experiments and various kinds of pharmaceuticals enables the author to suggest ways to increase a flier's performance when exposed to an overload.

Aviation practice and the future development of space navigation make essential a further study of the etiology and pathogenesis of motion sickness and the question arises of determining on a sound scientific basis the most effective means for its prevention and treatment. The master evaluates the question of different aspects of vestibular selection and the expert examination

USSR

USACHEV, Ye. S.

"The Realization of a Stochastic Model of Automation"

Issled. po Teorii Samonastrayivayushchikhsya Sistem [Studies on the Theory of Self-Tuning Systems -- Collection of Works], Moscow, Acad. Sci. USSR Computer Center, 1971, pp 207-222, (Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1972, Abstract No 3 V331 from the Introduction).

Translation: A sequence of probabilistic automata is constructed, approximately imitating a stochastic model of learning. The construction is based on replacement of a continual automaton which is a model of learning with a finite automaton.

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USSR

UDC 542.91 + 547.297 + 547.558.2

USACHEVA, G. M., and KAMAY, G. KH. (Deceased), Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Acad. Sc. USSR

"Reaction of Acetyl Bromide With Triphenylarsine Oxide"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 71, pp 168-169

Abstract: The reaction of acetyl bromide with triphenylarsine oxide, taken in a 2:1 ratio, in toluene yields triphenylarsine bromide and acetic anhydride as well as unreacted starting materials. Triphenylarsine bromide is hydrolyzed easily to triphenylhydroxyarsine bromide. In the infrared triphenylarsine bromide exhibits absorption bands at 1003, 1027, 1076, 1458, and 1580 cm^{-1}.

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USSR

UDC 539.193:547.242

KONDRAT'YEVA, O. I., TROITSKAYA, A. D., CHADAYEVA, N. A., CHUYKOVA, A. I., USACHEVA, G. M., and IVANTSOV, A. Ye., Kazan' Chemical Technological Institute Imeni S. M. Kirov and Kazan' Institute of Organic and Physical Chemistry Imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Investigation of the Complex Compounds of Chromium (I) With Organic Derivatives of Arsenic by the EPR Method"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 9, Sep 73, pp 2087-2088

Abstract: Eight new complex compounds of chromium (I) with organic derivatives of arsenic (III) were obtained in acetone solution. The reaction occurred instantaneously at room temperature with a slight excess of the arsenic component. It was found that changes even in remote areas surrounding arsenic had a definite effect on the characteristics of the chromium(1)-arsenic(III) bond, which could be due to a possible decrease of the participation of S electrons in formation of sp^n-hybrid orbitals.

USSR UDC 542.91+547.297+546.14+547.242

USACHEVA, G. M., KAMAI, G. Kh. Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Reaction of Tertiary Arsine Sulfides with Acid Halides. III. Reaction of Phenyldiethylarsine Sulfide with Acetyl Bromide"

Leningrad, Zhurnal Obshchei Khimii, Vol 40, No 6, Jun 70, pp 1306-1310

Abstract: The reaction of acetyl bromide with phenyldiethylarsine sulfide at reagent ratios of 1:1 and 2:1 was studied. In the first case, the reaction proceeds rather vigorously at 20-25° and is completed after 16-17 hours. A mixture of thioanhydride of phenylethylarsinous and acetic acid, phenylethylbromoarsine, and ethyl diacetate was obtained. No pure ethyl bromide was detected. Composition of the mixture varies with different reaction times and temperatures. When the starting materials were used at a 2:1 ratio, the reaction takes place considerably more slowly at 20-25° and is completed after 240-250 hours. Distillation of the reaction mixture showed that ethyl bromide was present together with the mixed thioanhydride of phenylethylarsinous and acetic acids, as well as phenylethylbromoarsine.

USSR UDC 542.91+547.297+547.558.2

USACHEVA, G. M., KAMAY G. KH., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Reaction of Acyl Chloride With Triphenylarsine Oxide"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, Jun 70, pp 1432-1433

Abstract: The reaction of acyl chloride with triphenylarsine oxide taken in a 2:1 ratio in anhydrous toluene yields triphenylarsine dichloride (I) and a mixture of acetic anhydride, toluene, and the starting acyl chloride. The structure of (I) was assigned on the basis of IR spectroscopic data and mixed melting point determination with independently synthesized (I). Also, (I) was hydrolyzed to triphenylarsinehydroxychloride (II) whose IR spectrum and melting point is identical with independently synthesized (II).

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Magnesium

USSR

UDC 669.295.004.2

AKIMOVA, N. A., KARVATSKAYA, R. A., USACHEVA, L. A., and PAVLYUK, YU. S.

"Desalinization of Waste Water in Titanium-Magnesium Production"

Sb. tr. Vses. n.-i. i proyektn. in-t titana (Collection of Works of the All-Union Scientific Research and Design Institute of Titanium), 1970, 8, pp 109-113 (from RZh-Metallurgiya, No 11, Nov 70, Abstract No 11G156)

Translation: Investigations are conducted of the desalinization of waste water from a gas purification installation in Mg production (hypochlorite pulp). A principal diagram for the neutralization and desalinization of waste water is proposed: filtration, breaking down of $Ca(OCl)_2$ in HCl filtrate, thereafter of phenol water, vacuum evaporation, evaporation in steel boats. As a result, a melted $CaCl_2$ is obtained which corresponds to GOST 450-58. 2 ill., 4 tables.

Authors' abstract

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USSR UDC 628.3+669.295

AKIMOVA, N. A., KARVATSKAYA, R. A., USACHEVA, L. A., and KOVALEV, V. Ya.

"Semiindustrial Experiments on Removing Suspended Substances and Oils From Runoff Waters"

Moscow, Metallurgiya i Khimiya Titana (Institut Titana), Metallurgiya Publishing House, Vol 6, 1970, pp 143-145

Translation: A description is given of the results of industrial tests on purifying runoff at the DTM [expansion unknown] Plant of suspended substances and oils by mixing neutralized and slightly polluted runoff in a ratio 1:2.5 or 1:2, introducing polyacrylamide in the amount of 0.1-0.2% of the suspended substances, and subsequent standing for one hour. It is demonstrated that under such settling pool operating conditions, a clear, colorless, purified 75% (volumetric) amount is received, which contains an average of 10.4% mg/liter of suspended substances, and no oil. In the settled deposit, the content of the hard part averages 2% and water 98%. After five hours of settling in a separate reservoir, consolidation of the deposit practically ends and the content of the hard part averages 3.6%. One illustration and two tables.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420008-0"

USSR

UDC 669.295.004.2

ALIMOVA, N. A., KARVATSKAYA, R. A., USACHEVA, L. A., and KOVALEV, V. YA.

"Pilot Plant Experiments on Purification of Waste Water to Remove Suspended Materials and Oils"

Sb. tr. Vses. n.-i. i proyektn. in-t titana [Collected works of All-Union Scientific-Research and Planning Institute for Titanium], 6, 1970, 143-145, (Translated from Referativnyy Zhurnal-Metallurgiya, No. 1, 1971, Abstract No.1 G198 by the authors).

Translation: Results are presented from industrial tests of a method for purification of titanium plant waste waters to remove suspended material and oils by mixing neutralized and little-contaminated water in a ratio of 1:2.5 or 1:2, introduction of polyacrylamide at 0.1-0.2% of the weight of suspended materials, and subsequent settling for one hour. With this mode of settling, the waste water becomes clear and colorless in 75% of its volume; this clear volume contains 10.4% mg/l suspended material, and no oil. The content of solids in the lower portion is about 2%, water 98%. After five hours settling, the compaction of the sediment is practically complete; the content of solids is then about 3.6%. 1 figure; 2 tables.

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UDC 632.95

USSR

KURDZHAMYAN, K. A., BLINOVA, I. G., STONOV, L. D., BAKULENKO, L. A., and USACHEVA, N. N.

"Concerning the Herbicidal Activity of Certain Azyl- and Alkyl-Containing Thioureides, Thioureas and Thiouracils"

V sb. Khim sredstva zashchity rast. (Chemical Agents for Plant Protection -- collection of works), vyp 1, Moscow, 1970, pp 197-200 (from RZh-Khimiya, No 11, Jun 72, Abstract No 11N445)

Translation: The following compounds were synthesized: 3-R-methyl-2-thiouracils (I) (R and the melting point in °C are cited): Me, 264-5; Et, 202-3; Pr, 172-3; Bu, 163-4; iso-Bu, 214; C_6H_{13}, 120; Ph, 256; o-ClC_6H_4, -; substances with the formula PhCONHCSNHR (II) (R and the melting point in °C are cited): Me, 150; Et, 133; Pr, 133; iso-Pr, 113-4; Bu, 51-2; tert-Bu, 127-8; C_8H_{17}, 152-3; Ph, 143; o-ClC_6H_4, 145-6; p-$O_2NC_6H_4$, 182; p-$Me_2NC_6H_4$, 166-7; and substances with the formula H_2NCSHR (III) (R and the melting point in °C are cited): Me, 108; Et, 103; iso-Pr, 157; Bu, 79; iso-Bu, 93.5; tert-Bu, 165; C_6H_{13}, 83;

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USSR

NURIDZHANYAN, K. A., et al., V sb. Khim. sredstva zashchity rast., Vyp 1, Moscow, 1970, pp 197-200

C_8H_{17}, 97; Ph, 154; o-ClC_6H_4, 142; p-$O_2NC_6H_4$, 190; p-$Me_2NC_6H_4$, 182-3.

Compounds I show higher herbicidal activity with respect to monocotyledons and dicotyledons than the corresponding uracils. Data are presented from tests of compounds II and III.

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USSR

UDC 632.95

STONOV, L. D., BAKUMENKO, L. A., USACHEVA, N. M., MANDEL'BAUM, YA. A., and BAKANOVA, Z. M.

"A Herbicide"

USSR Author's Certificate No 347045, filed 9 Mar 71, published 6 Sep 72 (from RZh-Khimiya, No 10, May 73, Abstract No 10N605P by T. A. Belyayeva)

Translation: O-(2-Nitrophenyl)-O-methyl-N-n-propylamidothiophosphate (I) in a dose of 1-2 kg/ha is proposed as a herbicide on fields of flax and vegetable crops. With application before sprouting, the activity of (I) in %: for oats 24-15, millet 98-100, beans 20-22, lettuce 17-67, beets 67-87, amaranth 75-88, flax and radish 0. The compound can be used in a mixture with other active compounds to broaden its spectrum of action.

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USSR

UDC 632.95

MEL'NIKOV, N. N., STONOV, L. D., KHASKIN, B. A., GORDON, O. C., USACHEVA, N. M., SABLINA, I. V., GRUZINSKAYA, N. A.

"New Herbicide and Desicant -- Bipyridyl Phosphate"

V sb. Khim. sredstva zashchity rast. (Chemical Means of Plant Protection -- collection of works), No 1, Moscow, 1970, pp 167-173 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12N492)

Translation: A series of phosphorus-containing salts of 4,4'-bipyridylium with the formula $[NC_5H_4\text{-}C_5H_4NCH_3]^+[(RO)OP(=X)YR']^-$ (I) (R, R', X, Y, the yield in %, the melting point in °C, $n^{20}D$ are presented): Me, Me, O, O, 58, 95-102, --; Me, Pr, O, O, 60, --; 1.4190; Me, Me, S, O, 59, 210 (dil.), --; Me, Me, S, S, 51, 106-7.5, --; Me, 2,4,5-$Cl_3C_6H_2$, S, O, 67, 84-5, --; Et, 2,4,5-$Cl_3C_6H_2$, S, O, 44, --, 1.6141 were synthesized. In order to obtain I, equimolecular amounts of 4,5-bipyridyl and esters of phosphorus acids were heated for 15-20 hours in a solvent (C_6H_6, alcohol, petroleum ether) at 40-100°. With alkylation of the 4,4'-bipyridyl in an excess of esters of phosphorus acids with

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MEL'NIKOV, N. N., et al., Khim. sredstva zashchity rast., No 1, Moscow, 1970, pp 167-173

heating (70-100°)' for 10-15 hours in the absence of a solvent or at 20-25° for 2-3 weeks, substances with the formula $[CH_3NC_5H_4-C_5H_4NCH_3]^{2+}[(RX)OP(O)YR']^{2-}$ (II) are obtained (R, R', X, Y, the yield in %, and the melting point in °C are presented): Me, Me, O, O, 63, 117-120 (IIa); Me, Me, S, O, 34, 52-61.5; Me, Et, S, O, 30, 78-80; Me, Me, S, S, 68, 138 (dil.); Me, Et, S, S, 61, 118 (dil.); Me, 2,4,5-$Cl_3C_6H_2$, S, O, 80, 166 (dil.). The IIa has low toxicity for warm blooded animals, significant herbicidal activity and a high defoliating effect.

2/2

1/2 017 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--DETERMINATION OF THE ACTIVITY OF PHENYLALANINE HYDROXYLASE IN THE HEPATIC TISSUE -U-

AUTHOR-(05)-POKROVSKIY, A.A., USACHEVA, N.T., MILOVA, G.N., YERMOLAYEV, M.V., YERMOLOV, A.S.

COUNTRY OF INFO--USSR

U

SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 69, NR 5, PP 122-124

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LIVER, ENZYME ACTIVITY, BIOPSY, PHENYLACANINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0207 STEP NO--UR/0219/70/069/005/0122/0124

CIRC ACCESSION NO--AP0120905

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0120905

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS HAVE ELABORATED A MICROMETHOD OF DETERMINING THE ACTIVITY OF PHENYLALANINE,4,HYDROXYLASE OF THE LIVER WHICH ENABLES TO EVALUATE THE ENZYMATIC ACTIVITY IN SEVERAL MILLIGRAMS OF TISSUE OBTAINED DURING BIOPSY. THE ENZYMATIC ACTIVITY WAS DETERMINED IN THE HEPATIC TISSUE OF DIFFERENT ANIMALS, ADULT PERSONS AND CHILDREN SUFFERING FROM PHENYLPYRUVIC OLIGOPHRENIA. FACILITY: INSTITUTE OF NUTRITION OF THE ACADEMY OF MEDICAL SCIENCES OF THE USSR, MOSCOW.

UNCLASSIFIED

USSR

UDC 616.273.2:612.288

AGADZHANYAN, N. A., BRESLAV, I. S., KONZA, E. A., USAKOVA, N. A., and YELFIMOV, A. I., Institute of Physiology imeni I. P. Pavlov, Academy of Sciences USSR, Leningrad

"The Role of Peripheral Chemoreceptors in Reactions of Rats Subjected to Short-Term and Prolonged Hypoxia"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 74, No 10, 1972, pp 11-15

Abstract: The role of the deafferentated synocarotid and aortic reflectogenic zones on respiratory, cardiovascular, and thermoregulatory activities of rats subjected to hypoxia was studied. The ventilation in intact rats breathing with the air containing 11% (PO_2 = 83.6 mm Hg), increased by 20.3% compared with the normal air respiration. No noticeable changes were observed on rats with deafferentated synocarotids on both sides and breathing with the same hypoxia mixture. The same was true for rats with deafferentated aortic zone. A rapid elevation (25 m/sec) of intact rats to 1000-7000 m produced a rapid breathing. The same was observed in deafferentated rats but it occurred much later and was 15-25% lower than in intact rats. The number of heart beats in both groups of animals increased, without any significant difference between them. The severe hypoxia at 7000 m inhibited sharply both the respiration and

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AGADZHANYAN, N. A., et al., Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 74, No 10, 1972, pp 11-15

the cardiovascular activity. A decrease in the pO_2 in the thigh muscle of the deafferentated rats was more noticeable under severe hypoxia. When animals spent 30 min at 5000 m elevation (pO_2 = 85 mm Hg), the number of respirations increased during the first 10 min and was high during the entire exposition time, but was lower in deafferentated rats. There were no significant differences in the reactions of the cardiovascular and thermoregulatory systems at this elevation. A complete exclusion of the synocarotid chemoreceptors lowered in pO_2 pressure in the thigh muscles of the deafferentated rats at 5000 m elevation (barochamber) with low oxygen concentration. Intact and deafferentated rats died within 86 and 68 seconds, respectively at 12,200 m elevation. No significant changes in the ventilation system were observed among both groups of rats placed in chambers with 11% oxygen for 30 days. It is concluded that the peripheral chemoreceptors play a definite role in a total adaptation of the animal organism to oxygen deficiency. At the same time, the synocarotid chemoreceptors do not play any significant role in reactions of the cardiovascular and thermoregulatory systems in response to hypoxia. Since the synocarotid deafferentation did not produce significant changes in the adequate ventilation in response to hypoxia it can be assumed that other chemosensitive systems, yet unknown, take part in this process.

2/2

USSR

UDC 576.2+591.1/.4

AGADZHANYAN, N. A. and USAKOVA, N. A., Institute of Medical and Biological Problems, Moscow

"The Effect of Acute Hypoxia on the Organism of Animals with "Denervated" Carotid Sinus Zones"

Moscow, Doklady Akademii Nauk SSSR, Vol 198, No 1, 1971, pp 236-239

Abstract: To investigate a possible correlation between shifts taking place in respiration and those occurring in other functional systems during hypoxia, tests were performed on male rats in a barochamber in which air pressure was reduced, to a simulated altitude of 12 km. Out of a total of 27 rats, 11 had bilaterally "denervated" carotid sinus chemoreceptors. The "denervation" was performed under nembutal anesthesia through treatment of both carotid bifurcations with 10% phenol. Control animals were subjected to identical surgery; however, no phenol was applied. The following parameters were measured: respiratory

USSR

AGADZHANYAN, N. A. and USAKOVA, N. A., Doklady Akademii Nauk SSSR, Vol 198, No 1, 1971, pp 236-239

rate, EKG, rectal temperature, and oxygen tension in a hip muscle. The respiratory rate increased in both groups up to a simulated altitude of 7 km; however, the rise was faster in the control group and the difference was statistically significant. With further increase in altitude, respiration was increasingly more depressed and, at an altitude of 12 km, it fell to a level some three times smaller than the control rate. Correspondingly, muscle tissue hypoxia was greater in the experimental group, and the difference was statistically significant at simulated altitudes from 4 to 8 km. The heart rate increased slightly up to the simulated altitude of 7 km and then rapidly declined with a further rise in altitude; however, there was no statistically significant difference between the two groups. Rectal temperature was gradually falling with rises in altitude, to reach a minimum of 0.6°C below the initial level in the control group and 0.43°C below the initial level in the experimental group. The results indicate that aortic arch chemoreceptors and

USSR

AGADZHANYAN, N. A. and USAKOVA, N. A., Doklady Akademii Nauk SSSR, Vol 198, No 1, 1971, pp 236-239

possibly other peripheral and central receptors can partly but not completely compensate for the carotid sinus chemoreceptors, and that the carotid sinus chemoreceptors exert no effects on cardiovascular and temperature-regulating centers.

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USSR

UDC 576.851.513.095.57.095.18

STOLYAROVA, L. G., USAKOVSKAYA, T. S., TSEYTLIN, P. I., and PEKHOV, A. P., Institute of Experimental Biology, Academy of Medical Sciences USSR, Moscow

"The Effect of Nitrous Acid on the Capacity of DNA to Inhibit Transformation of Bac. subtilis"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 3, 1970, pp 81-84

Abstract: The effect of nitrous acid on the capacity of DNA to inhibit transformation of Bac. subtilis was studied using calf thymus DNA treated with a 2 M solution of $NaNO_2$ for 20, 40, and 60 min. In control experiments, the effect of $NaNO_2$ on the transformation activity of DNA was studied. It was determined that 20 min treatment of DNA with $NaNO_2$ augments its inhibiting activity. Longer treatment reverses the order, so that after a 60 min treatment, the inhibition process is completely suppressed.

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USSR

UDC: 621.396.67:624.97(088.8)

SOKOLOV, A. Ye., USANOV, A. P., SHAPIRO, A. Z., D'YACHKOV, V. K., KUTYAYKIN, V. Ya., MUROKH, G. L., NARYSHKOV, V. M.

"A Device for Suspending the Radiating Element of Rotating Antennas"

USSR Author's Certificate No 262198, filed 20 May 68, published 3 Jun 70 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11B77 P)

Translation: This Author's Certificate introduces a device for suspending the radiating element of rotating antennas. The device contains a girder designed for fastening the radiating element, this girder being fastened to the reflector or antenna array by rod supports equipped with hinges. In order to reduce the effect which deformations of the elastic elements have on the electrical parameters of the antenna, the girder is connected to the rod supports through bearings, and to the reflector or antenna array through auxiliary guys, the lines which connect the points of fastening of these guys to the reflector or antenna array and to the girder forming a parallelogram. Two illustrations. Resumé.

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USSR

UDC 621.396.67:624.074

SOKOLOV, A. Ye., USANOV, A. P., SHAPIRO, A. Z., D'YACHKOV, V. K., KUTYAYKIN, V. A. MUROKH, G. L., NARYSHKOV, V. M.

"A Device for Suspension of the Primary Radiating Element of Rotating Antennas"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 6, 1970, p 41, patent No 262198, filed 20 May 68

Abstract: This Author's Certificate introduces a device for suspension of the primary radiating element of a rotating antenna. The unit contains a girder designed for holding the radiating element. This girder is fastened to the reflector or antenna array by means of rod supports equipped with hinges. As a distinguishing feature of the patent, the effect which deformations of the elastic elements in the device have on the electrical properties of the antenna is reduced by connecting the girder to the rod supports by means of bearings, and connecting it to the reflector or antenna array by means of additional guys. The connection lines of the points of fastening of the guys to the reflector or antenna array and to the girder form parallelograms.

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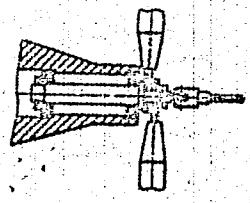
USSR

SOKOLOV, A. Ye., et al., Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 6, 1970, p 41, patent No 262198, filed 20 May 68



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USSR

UDC: 621.376.32

USANOV A S

"Relative Angular Modulation and the Principle of its Optimum Demodulation"

V sb. Materialy Nauch.-tekhn. konf. Leningr. elektrotekhn. in-t svyazi. Vyp. 1 (Materials of the Scientific and Technical Conference of Leningrad Electrical Engineering Institute of Communications--collection of works, No 1), Leningrad, 1971, pp 104-109 (from RZh-Radiotekhnika, No 3, Mar 72, Abstract No 3A100)

Translation: The authors consider the possibility of correlation reception of FM signals in which the modulation has a single-valued increase of the frequency and phase of the signal on a time interval. Resumé.

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USSR

UDC 621.476.223.029.64.001.24

BARANOV, L. I., GAMANYUK, V. B., KLIMOV, B. N., USANOV, D. A.

"On Calculation of Microwave Semiconductor Waveguide Resonators"

Moscow, Radiotekhnika i Elektronika, Vol 16, No 8, Aug 71, pp 1437-1441

Abstract: One type of waveguide modulator is a section of rectangular waveguide which contains a semiconductor diode in the form of a thin plate located in the center of the waveguide parallel to the narrow wall. Modulation is achieved by varying the conductivity of the base region of the diode. Theoretical and experimental data are compared and discrepancies are explained. It is concluded that the relationships derived in the paper can be used for the design of modulators based on laminar structures. The authors thank G. Ya. Nikushkin and S. N. Zorya for considerable assistance rendered during the calculations, as well as N. N. Khramov for participating in the experimental research.

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1/2 019 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--HORMONAL REGULATION OF PHOSPHOENOLPYRUVATE CARBOXYKINASE ACTIVITY IN LIVER AND KIDNEY OF ADULT ANIMALS AND FORMATION OF THIS ENZYME IN
AUTHOR--USATENKO, M.S.

COUNTRY OF INFO--USSR

SOURCE--BIOCHEM. MED. 1970, 3(4), 298-310

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LIVER, KIDNEY, RABBIT, ENZYME ACTIVITY, HYDROCORTISONE, MITOCHONDRION, DIABETES MELLITUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0315 STEP NO--US/0000/70/003/004/0298/0310

CIRC ACCESSION NO--AP0119302

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119302

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MOST OF PHOSPHOENOLPYRUVATE CARBOXYKINASE (I) (EC 4.1.1.32) ACTIVITY OF RABBIT LIVER RESIDED IN MITOCHONDRIA, WHEREAS MOST WAS LOCATED IN THE SOL. FRACTION OF RAT LIVER. FASTING AND I.M. INJECTIONS OF HYDROCORTISONE DID NOT ALTER RAT AND RABBIT HEPATIC MITOCHONDRIAL I ACTIVITY, BUT NEARLY DOUBLED THE AMTS. IN THE SOL. FRACTION. HYDROCORTISONE (2.5 MG-100 G, I.M., EVERY 12 HR FOR 60 HR) ALSO MARKEDLY INCREASED RABBIT KIDNEY CORTEX SOL. FRACTION I, BUT DID NOT ALTER MITOCHONDRIAL I LEVELS. IN ALLOXAN DIABETES, I ACTIVITY OF RAT KIDNEY CORTEX EXT. SHOWED A 2.2 FOLD INCREASE OVER NORMAL VALUES. AT EARLY STAGES OF EMBRYONIC DEVELOPMENT, THE RABBIT LIVER SHOWED NO I ACTIVITY UNTIL THE 25TH DAY OF EMBRYOGENESIS, AT WHICH TIME ACTIVITY WAS EXTREMELY LOW IN BITH MITOCHONDRIAL AND SOL. LIVER FRACTIONS; THEREAFTER, ACTIVITY GRADUALLY INCREASED IN BOTH FRACTIONS. WITHIN THE 1ST POSTNATAL DAY, I ACTIVITY ROSE ABRUPTLY TO VALUES HIGHER THAN THOSE OF ADULT RABBITS AND DID NOT RETURN TO ADULT LEVELS UNTIL THE 30TH POSTNATAL DAY. THE RELATIONS BETWEEN I ACTIVITY AND GLUCONEOGENESIS ARE DISCUSSED. FACILITY: DEP. BIOCHEM., INST. EXP. MED., LENINGRAD, USSR.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--THE ACTIVITY OF THE ENZYMES OF GLUCONEGENESIS FROM THE LIVER OF TEH GROUND SQUIRREL CITELLUS SUSLICUS -U-

AUTHOR-(02)-DAUDOVA, G.M., USATENKO, M.S.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EVOLYUTSIONNOY BIOKHIMII I FIZIOLOGII, 1970, VOL 6, NR 1, PP 35-41

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ENZYME ACTIVITY, LIVER, GLUCOSE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1983/1293 STEP NO--UR/0385/70/006/001/0035/0041

CIRC ACCESSION NO--AP0054181

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054181

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HIGH ACTIVITY OF KEY ENZYMES OF GLUCONOCOGENESIS PHOSPHOENOLPYRUVATE CARBOXYKINASE (PEPK ASE) AND GLUCOSE-6-PHOSPHATASE (G6PASE) HAS BEEN OBSERVED IN THE LIVER OF THE GROUND SQUIRRELS DURING ACTIVE PERIOD (JULY, AUGUST). AT THIS TIME OF YEAR, THE ACTIVITY OF PEPKASE OF THE SOLUBLE FRACTION WHICH IS LIMITING TO THE OVERALL RATE OF GLUCONEOGENESIS, WAS CONSIDERABLY LOWER THAN THE ACTIVITY OF THIS ENZYME IN MITOCHONDRIA ON THE ACTIVITY OF G6PASE OF THE EXTRACT (CORRESPONDINGLY 2.1, 15.9 AND 5.9 MUMALES-MIN-G OF WET WEIGHT OF THE LIVER AT 37DEGREES). JUST BEFORE HIBERNATION AND ESPECIALLY DURING THE LATTER, THE ACTIVITY OF PEPKASE IN MITOCHONDRIA DECREASED, WHEREAS THAT IN THE SOLUBLE FRACTION INCREASED. CHANGES IN THE ACTIVITY OF G6PASE WERE SIMILAR TO THOSE IN THE ACTIVITY OF PEPKASE OF THE SOLUBLE FRACTION, ALTHOUGH THEY WERE LESS SIGNIFICANT. THE INCREASE IN THE ACTIVITY OF G6PASE AND PEPKASE OF THE SOLUBLE FRACTION OF THE LIVER DURING HIBERNATION INDICATES THE INCREASED ROLE OF GLUCONEOGENESIS IN MAINTENANCE OF THE REQUIRED LEVEL OF GLYCAEMIA IN THE ORGANISM. 3-3.5 HOURS AFTER ARTIFICIAL AWAKENING THE ACTIVITY OF G6PASE AND PEPKASE IN THE FRACTIONS STUDIED WAS ESSENTIALLY THE SAME AS IN HIBERNATING ANIMALS. 24 HOURS AFTER ARTIFICIAL AWAKENING (ANIMALS REMAINED UNFED) ONLY THE INCREASE IN THE ACTIVITY OF PEPKASE IN BOTH LIVER FRACTIONS WAS OBSERVED.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--RAPID AMPEROMETRIC DETERMINATION OF PALLADIUM IN PALLADIUM PLATING BATHS -U-

AUTHOR-(04)-ARISHKEVICH, A.M., PITSYK, O.I., ZAMORSKAYA, T.V., USATENKO, YU.I.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB. 1970, 36(3), 265-7

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--PALLADIUM, METAL CHEMICAL ANALYSIS, AMPEROMETRIC TITRATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/1215 STEP NO--UR/0032/70/036/003/0265/0267

CIRC ACCESSION NO--AP0138230

UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0138230
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. WITH A SOLN. OF 3,METHYLDIMERCAPTOTHIOPYRONE (I) IN 0.4M ALKALI AS REAGENT AND GRAPHITE INDICATOR ANODE, 20 MUG TO 1.5 MG OF PD WERE TITRATED IN ACID MEDIUM (FROM PH 4 TO 20N H SUB2 SO SUB4 OF 10N HCL) AT 0.4-0.6 V (VS. SCE). THE MOLAR RATIO IS SHOWN ON MICROFICHE. AMPEROMETRIC RESULTS WERE COMPARED WITH GRAVIMETRIC DIMETHYLGLYOXIME VALUES. THE PREPN. OF I IS DESCRIBED. FACILITY: DNEPROPETROVSK. KHIM.-TEKHNOL. INST., DNEPROPETROVSK, USSR.

UNCLASSIFIED

USATYUK, V.N.

Information Processing

30 Sep 71

22. USSR 60 FDD:CYBERNETICS

YANBYKH, V. P., Riga Affiliate of Kaliningrad Technical Institute of the Fish Industry and Economy UDC 639.2.053

"Optimal Control of Relocation of Ships for a Fishing Industry Expedition"

Moscow, Rybnoye Khozyaystvo, No 5, 1971, pp 83-85

Abstract: This article describes a heuristic computer algorithm for optimizing the location of a fishing fleet consisting of one receiving ship and n catching ships. Each time fishing conditions change it is necessary to move the ships, according to such a way as to maximize the difference between the wholesale value of the completed output prepared from the fish caught in the previous period and the cost of relocating the ships. The given algorithm is only approximate, but its accuracy can be increased by increasing the number of evaluations used to describe the location of the ships.

1/1

23. USSR

USATYUK, V. N., Far Eastern Polytechnical Institute imeni V. V. Kuybyshev UDC 639.3.031:51

"Processing the Industry's Information on a Digital Computer"

Moscow, Rybnoye Khozyaystvo, No 5, 1971, pp 83-91

Abstract: In the fishing industry, the problem of storing and processing primary information is complicated by the fact that many characteristics of the catch, such as the size of the catch, the time needed to search for shoals of fish, and so on, depend on a large number of random factors. Since precise quantitative relations ships are not available, the interconnections must be expressed as a set of random variables or as so-called statistical sequences. A program for the Minsk-22 digital computer was developed for the purpose of constructing a statistical sequence from primary fishing industry data and determining its distribution law. The main points of the algorithm for this program are described and a flow chart is presented. This algorithm permits fishing data to be represented in a compact form that is convenient for storage and use in automated control systems.

1/1

USSR

UDC 620.186:621.785.539:534-8

USATYY, YU. P., Moscow Automobile and Road Institute

"Formation of a Calorized Layer on Armco Iron Under the Influence of Ultrasonic Oscillations"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 2, 1971, pp 12-15

Abstract A combined study of the diffusion parameters during formation of a calorized diffusion layer on Armco iron under the influence of ultrasound was performed in comparison with ordinary calorizing. Ultrasonic oscillations were found to accelerate the process of calorizing of technically pure iron, increasing the depth of the calorized layer. The activation energy of diffusion is significantly decreased by the ultrasound, particularly in specimens rigidly attached to the waveguide. Direct application of ultrasonic oscillations to the specimen decreases the concentration of aluminum in the surface films and decreases the slope of the concentration curves, indicating an increase in the effective diffusion coefficient.

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USSR

UDC 547.783:543.422.4.6

USAYEVICH, YU. YA., BOKSINER, YE. I., and FEL'DMAN, I. KH., Leningrad Chemical-Pharmaceutical Institute

"Imidazolones. IV. Aminomethylation and Phosphorylation of Imidazolone-4(5) 2.5(4)-Substituted Derivatives"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 6, Jun 71, pp 804-806

Abstract: Imidazolones-4(5) substituted in 2,5(4) positions do not react with formaldehyde according to the Knoevenagel reaction, but in presence of equimolar quantity of dimethylamine react easily to give Mannich reaction products. A mixture of 1.37 g of 2-(3',4'-dimethoxyphenyl)-5(4)-methylimidazolone-4(5), 1 ml 20% aqueous dimethylamine, 0.45 ml of 36% aqueous formaldehyde, and 7 ml acetic acid is heated at 60° to achieve solution, then left to stand for 24 hrs. The mixture is treated with NaOH, filtered and the product -- 2-(3',4'-dimethoxyphenyl)-5(4)-methyl-5(4)-dimethylaminomethylimidazolone-4(5), m.p. 138-139° is recrystallized from a benzene-ether mixture. Treating 2,4(5)-substituted imidazolones-4(5) with phosphorus oxychloride gives phosphorylation products. To 1.37 g 2-(3',4'-dimethoxyphenyl)-5(4)-isobutylimidazolone-4(5) in 5 ml dry benzene, 0.3 ml dimethylaniline is added, the mixture is cooled and 1.5 ml phosphorus oxychloride is added dropwise, followed by a 3 hrs reflux.

USSR

USAYEVICH, YU. YA., et al., Khimiya Geterotsiklicheskikh Soyedineniy, No 6, Jun 71, pp 804-806

Upon cooling, tri-(2-(3',4'-dimethoxyphenyl)-5-isobutyl-4-ketoimidazoyl-1) phosphine oxide, m.p. 298-300° precipitates.

2/2

USSR

USENBAYEV, A., Candidate of Medical Sciences

"Effect of High Altitude on the Blood Recovery Processes in Donors"

Frunze, Vliyaniye vysokogor'ya na protsessy vosstanovleniya krovi i donorov (cf. English above), Izdatel'stvo Kyrgyzstan, 1972, p 159

Translation:

Contents

1/2

USSR

USENBAYEV, A., Vliyaniye vysokogor'ya na protsessy vosstanovleniya krovi i donorov, Izdatel'stvo Kyrgyzstan, 1972, p 159

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USSR

UDC 616.988.25-092.9-092

USEBAYEVA, G. K., KARPOVICH, L. G., and LEVKOVICH, Ye. N., Institute of Poliomyelitis and Virus Encephalitides, Academy of Medical Sciences USSR

"Characteristics of the Pathogenesis of Infection in Mice Caused by Virulent and Attenuated Variants of Tickborne Encephalitis Virus and Langat Virus"

Moscow, Voprosy Virusologii, No 4, Jul/Aug 70, pp 482-488

Abstract: Experiments on white mice showed that the TR-21 strain of langat virus and its attenuated variant TP-21-237, and the attenuated PAN-114 variant of tickborne encephalitis virus are peculiar with respect to the pathogenetic characteristics of the infection that they produce in animals. These viruses possess genetically stable markers, notably $mNsc^-$ and II^+, and thus differ from the virulent "wild" TBE virus. The TP-21 strain, its TP-21-237 variant, and the Pan-114 variant of TBE virus, which possess $mNic^+$, $mNsc^-$, and II^+ or II^- markers, are less active than the virulent Pan strain, multiply for a shorter period of time in such organs as the lymph nodes and intestine, are absent in infectious form in the brain and spinal cord, and exhibit a low level of viremia. Subcutaneous inoculation of mice with the attenuated Pan-114 and T-21-237 variants results in a latent infection.

1/1

USSR

UDC 8.74

BABENKO, L. P., DOVGOPOLAYA, L. I., TROKHIMENKO, V. S., USENKO, R. D., YUSHCHENKO, YE. L.

"Debugging Media in a Programming System"

V sb. Teoriya yazykov i metody postroyeniya sistem programmir. (Language Theory and Methods of Constructing Programming Systems--collection of works), Kiev-Alushta, 1972, pp 309-314 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V486)

Translation: A study was made of means controlled by the user in the COBOL programming system for the Dnepr-21. In order to retain the general organization of the COBOL program the debugging instructions in the indicated system are in the form of an auxiliary division of the COBOL program, the so-called debugging section which is an instruction for the operations system with respect to the problem statement mode on the computer. The language of giving this instruction is similar with respect to form to the COBOL language and is based on its concept and terminology. All of the debugging operators in the COBOL-Dnepr-21 system are divided into the following categories: 1) the operator for initial running of the program; 2) the operators for interrupting the normal course of execution of the program on occurrence of certain situations which are provided for; 3) operators permitting additional information

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USSR

BABENKO, L. P., et al., Teoriya yazykov i metody postroyeniya sistem programmir., Kiev-Alushta, 1972, pp 309-314

to be obtained on the process of execution of the program on occurrence of an interruptsituation or before beginning its execution; 4) operators permitting halting of execution of the program or continuation of it after an interrupt by transferring control to a section of the COBOL program. The syntax of the debugging section of the COBOL program is presented as an example.

2/2

USSR

UDC: 8.74

SHABANOV-KUSHNARENKO, Yu. P., YEREMIN, G. S., USENKO, S. A.

"Linear Mathematical Model of the Conversion of Complex Acoustic Signals to Loudness"

Probl. bioniki. Resp. mezhved. temat. nauch.-tekhn. sb. (Problems of Bionics. Republic Interdepartmental Thematic Scientific and Technical Collection), 1971, vyp. 7, pp 68-74 (from RZh-Kibernetika, No 4, Apr 72, Abstract No 4V599)

Translation: Problems of modeling loudness conversions in the human auditory analyzer are considered. A linear mathematical model is proposed for a set of acoustic signals whose amplitude-frequency spectrum consists of a finite number of harmonic components. The band in the range of sounds audible to man where the axioms are satisfied is experimentally determined. Authors' abstract.

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USSR UDC: 536.24:536.42

BUTUZOV, A. I., FAYNZIL'BERG, S. N., BEZRODNYY, M. K., USENKO, V. I., KUDELYA, P. P.

"On the Problem of Studying Heat Exchange During Boiling of Liquids Under Inertial Loading Conditions"

Teplofiz. i teplotekhnika. Resp. mezhved. sb. (Thermal Physics and Heat Engineering. Republic Interdepartmental Collection), 1970, Vol 16, pp 137-140 (from RZh-Mekhanika, No 9, Sep 70, Abstract No 9B869)

Translation: Experiments are conducted on determining the laws of heat exchange which accompany boiling of freon-12 and water on heating surfaces with thermal loads $q = (6.6\text{-}200)$ kW/m^2, and with inertial overloads $a/g = 1\text{-}5250$. Three typical heat exchange regions are distinguished: well developed boiling when $q > q_{fc} + q_{ub}$, undeveloped boiling -- $q_{fc} < q < q + q_{ub}$, and a heat exchange region with free convection -- $q < q_{fc}$. The thermal loads q_{fc} and q_{ub} are given in the form of power functions of the inertial overloads and the kind of liquid. In addition, q_{fc} depends on the thickness of the liquid layer on the heat exchange surface. For the heat exchange region with free convection, the authors recommend the usual form of dimensionless relationship with substitution of inertial acceleration a for acceleration due to

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BUTUZOV, A. I., et al, Teplofiz. i teplotekhnika. Resp. mezhved. sb., 1970, Vol 16, pp 137-140 (from RZh-Mekhanika, No 9, Sep 70, Abstract No 9B869)

gravity g. In the region of well developed boiling, the conventional form of relationship between the coefficient of heat exchange α and heat flux $q_b = q - q_{fc}$. The effect of inertial overloading is accounted for in the parameter q_{fc}. In the region of undeveloped boiling, they propose a relationship of the form $\alpha = cq_k^n(a/g)^m$, where c, m and n are constants. The results of the experiments agree with the data of McAdams, Mert and Clark. A description is given of the construction of an installation with closed circulation of the cooling agent in the rotor sections of a model; this installation can be used to conduct experiments at heat fluxes of up to 10 MW/m^2. Yu. Ye. Pokhvalov.

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Acc. Nr.: A70046706

Ref. Code: UR0146

USSR

UDC 681.128.5

BUTUZOV, A.I., BEZRODNYY, M.K., FAYNZIL' BERG, S.N., KUDELYA, P.P., USENKO, V.I.

"Thermistor Compensated Quantity Gage"

Termorezistornyy kompensirovannyy urovnemer (cf. English above), Leningrad, Izvestiya Vysshikh Uchebnykh Zavedeniy, Priborostroyeniye, 1970, No 1, pp 123-126

Translation:

The design is considered of a thermistor quantity gage with compensation for the errors associated with the variation of the parameters of the ambient medium.

Reel/Frame
19790009

1/2 009 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--ARYLSULFONYLACETONITRILES. III. ARYLSULFONYLCYANOTHIOACETIC ACID ARYLAMIDES IN THE JAPP-KLINGEMANN REACTION. HYDROLYTIC SPLITTING OFF OF

AUTHOR-(04)-NEPLYUYEV, V.M., USENKO, YU.N., DUBENKO, R.G., PELKIS, P.S.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(4), 801-5

DATE PUBLISHED----------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THIOL, ACETIC ACID, ORGANIC NITRILE COMPOUND, ANILINE, AROMATIC CARBOXYLIC ACID, AMIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/2154 STEP NO--UR/0366/70/006/004/0801/0805

CIRC ACCESSION NO--AP0125737

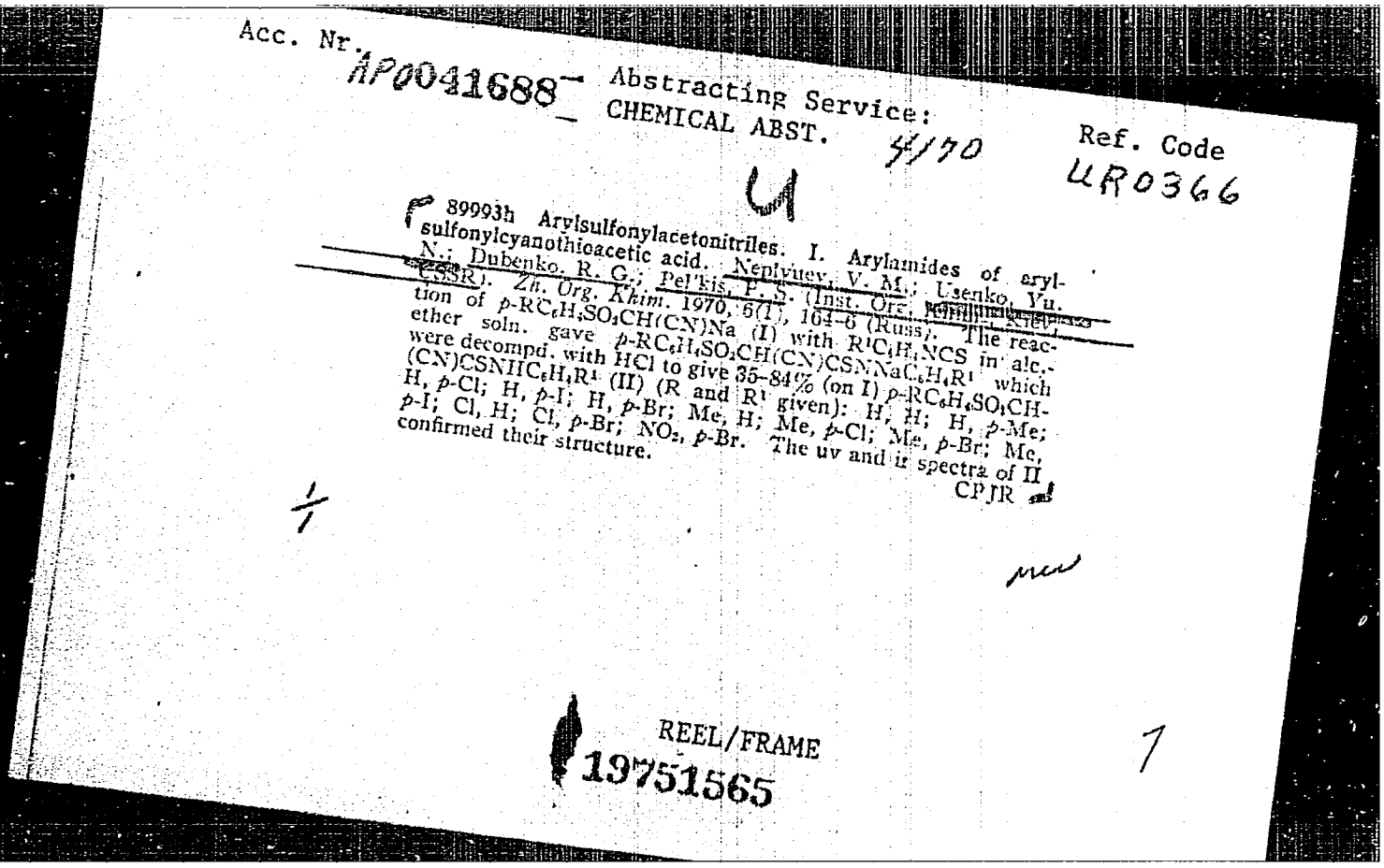
UNCLASSIFIED

2/2 009 UNCLASSIFIED

CIRC ACCESSION NO--AP0125737 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTIONS OF P-XC SUB6 H SUB4 SO SUB2 CH(CN)CSNHR WITH P-X PRIME1 C SUB6 H SUB4 N SUB2 CL IN AN ALC.-WATER MIXT. CONTG. ACONA GAVE P-XC SUB6 H SUB4 SO SUB2 C(CN):NNHC SUB6 H SUB4 X PRIME1-P AND RNHC(S)OH. SIMILARLY, PHNHCOCH(CN)CO SUB2 ET REACTED WITH P-X PRIME1 C SUB6 H SUB4 N SUB2 CL TO GIVE P-X PRIME1 C SUB6 H SUB4 NHN:C(CN)CO SUB2 ET PLUS PHNHCO SUB2 H. IN THE COURSE OF THE REACTION, PHNHCO SUB2 H DECOMPD. TO PHNH SUB2 AND CO SUB2. ALSO, PHNHC(S)CH(CN)CO SUB2 ET REACTED WITH P-X PRIME1 C SUB6 H SUB4 N SUB2 CL TO GIVE P-X PRIME1 C SUB6 H SUB4 NHN:C(CN)CO SUB2 ET, PHNH SUB2, H SUB2 S, AND CO SUB2. THESE REACTIONS INVOLVE THE INTERMEDIATE P-XC SUB6 H SUB4 SO SUB2 C(CN)(Y)N:NC SUB6 H SUB4 X PRIME1-P COMPLEXES IN WHICH THE FACILITY FOR THE SPLITTING OFF Y DECREASES IN ORDER H GREATER THAN CSNHR GREATER THAN OR EQUAL TO CONH SUB2 GREATER THAN CONHR GREATER THAN CO SUB2 H GREATER THAN COR PRIME1 GREATER THAN CO SUB2 R PRIME1 GREATER THAN BR APPROXIMATELY EQUAL TO NO SUB2 GREATER THAN CN GREATER THAN SO SUB2 R GREATER THAN R APPROXIMATELY EQUAL TO R PRIME1 (R AND R PRIME1 ARE AROMATIC AND ALKYL GROUPS RESP.). FACILITY: INST. ORG. KHIM., KIEV, USSR.

UNCLASSIFIED



Acc. Nr. AP0041688 Abstracting Service: CHEMICAL ABST. 4/70 Ref. Code UR0366

89993h Arylsulfonylacetonitriles. I. Arylamides of arylsulfonylcyanothioacetic acid. Neplyuev, V. M.; Usenko, Yu. N.; Dubenko, R. G.; Pel'kis, P. S. (Inst. Org. Khim., Kiev, USSR). *Zh. Org. Khim.* 1970, 6(1), 164-6 (Russ). The reaction of p-$RC_6H_4SO_2CH(CN)Na$ (I) with $R^1C_6H_4NCS$ in alc.-ether soln. gave p-$RC_6H_4SO_2CH(CN)CSNNaC_6H_4R^1$ which were decompd. with HCl to give 35–84% (on I) p-$RC_6H_4SO_2CH(CN)CSNHC_6H_4R^1$ (II) (R and R^1 given): H, H; H, p-Me; H, p-Cl; H, p-I; H, p-Br; Me, H; Me, p-Cl; Me, p-Br; Me, p-I; Cl, H; Cl, p-Br; NO_2, p-Br. The uv and ir spectra of II confirmed their structure.

CP JR

REEL/FRAME 19751565

Pulse Technique

USSR

UDC 621.374.5(088.8)

USHA, Ye. B.

"A Current Pulse Shaper"

USSR Author's Certificate No 259143, Filed 1 Apr 68, Published 28 Apr 70 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10G211 P)

Translation: This author's certificate introduces a current pulse shaper which contains a keying stage based on two transistors with a common emitter resistor, and a source of controlling current pulses. To increase the input circuit impedance and the stability of the discrimination threshold, the emitters of the transistors in the keying stage are connected to the collector of an additional transistor whose emitter is connected to the source of controlling current pulses.

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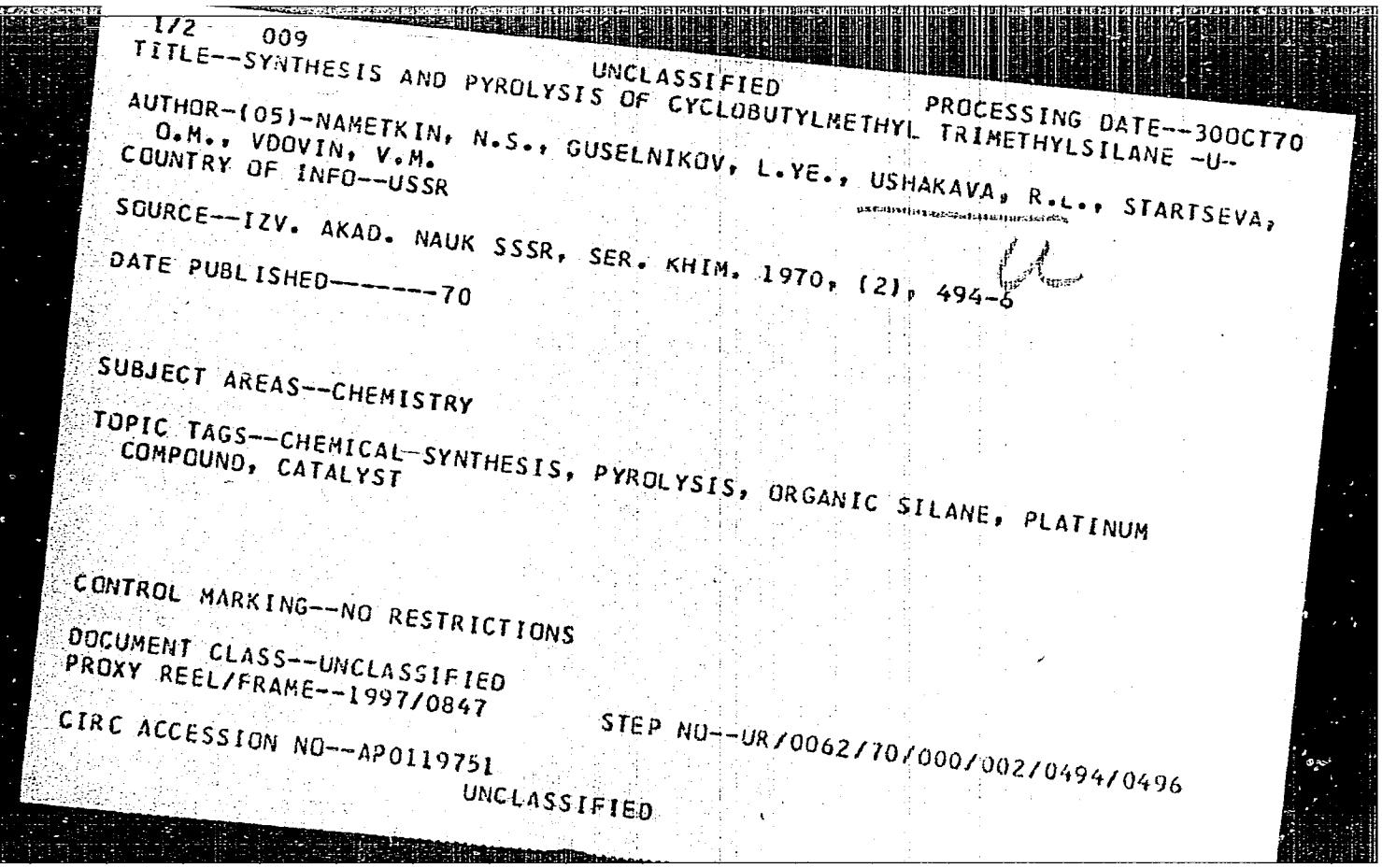

1/2 009 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--SYNTHESIS AND PYROLYSIS OF CYCLOBUTYLMETHYL TRIMETHYLSILANE -U-

AUTHOR-(05)-NAMETKIN, N.S., GUSELNIKOV, L.YE., USHAKAVA, R.L., STARTSEVA, O.M., VDOVIN, V.M.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (2), 494-6

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL SYNTHESIS, PYROLYSIS, ORGANIC SILANE, PLATINUM COMPOUND, CATALYST

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0847

STEP NO--UR/0062/70/000/002/0494/0496

CIRC ACCESSION NO--AP0119751

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203420008-0"

2/2 009 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0119751

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADDING 15.5 G METHYLENECYCLOBUTANE OVER 2 HR TO 23 G ME SUB2 SIHCI AND 0.2 ML H SUB2 PTCI SUB6 CATALYST IN THF, AND HEATING THE MIXT. 8 HR AT 110DEGREES GAVE 51PERCENT DIMETHYL(CYCLOBUTYLMETHYL) CHLOROSILANE, B. 167-8DEGREES, N PRIME20 SUBD 1.4465, D PRIME20 0.9296. THIS WITH MEMGI GAVE 55.4PERCENT (CYCLOBUTYLMETHYL) TRIMETHYLSILANE, B. 145DEGREES, 1.4310, 0.7816. PYROLYSIS IN A STATIC SYSTEM AT 430DEGREES GAVE 51PERCENT CH SUB2:CHCH SUB2 SIME SUB3 IN 30 MIN. IN AN IMPULSE PYROLYSIS AT 575DEGREES WITH 12 SEC CONTACT TIME, 61PERCENT CONVERISON WAS ATTAINED; THE AMT. OF SAMPLE DID NOT AFFECT THE CONVERSION, SHOWING THAT THE REACTION IS TRULY MONOMOL. AND FORMS THE ABOVE PRODUCT AND C SUB2 H SUB4.

FACILITY: INST. NEFTEKHIM.SIN. IN. TOPCHIEVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

USHAKOV, A.

"Listening to the Voice of Astronauts..."

Kiev, Rabochaya Gazeta, 14 Feb 74, p 4

Translation: One of the most intricate problems which confront space medicine is the observation of the state of astronauts during the flight. The physiological control is far from being always possible, and the information obtained in this way may be also insufficient. For this reason the attention of specialists is drawn toward materials provided by radio-television communication with space crews.

The voice of man... It may sound solemn or sad, excited or indifferent, tired or alert, even though we may be convinced that our speech is quite normal. It is exactly this problem of "normality of voice" that is of the greatest interest to physicians on the ground. They want to know whether astronauts do exhibit any deviations from the normal and any reduction in the capacity for work. It is exactly here that the analysis of voice can be of help.

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USHAKOV, A., Rabochaya Gazeta, 14 Feb 74, p 4

The analysis of voice is a very labor-consuming process. Even in using the most advanced instruments the researchers were unable to process the obtained materials. To study speech information the use was made of digital electronic computers, but even their speed of response proved to be insufficient.

The help came from the most reliable and perfect instrument which is the ear of man. A well-trained expert-listener can solve problems which are beyond the powers of an electronic computer. He catches and compares the finest nuances of speech, peculiarities of intonation, signs of hesitation, the structure of a sentence, peculiarities of accent, and on their basis he forms an opinion on the state of man. The appraisals of a group of these experts may be processed mathematically and then the results obtained will be not inferior to the finest instrumental data. To be sure, one method does not exclude the other, the expert method and instrumental analysis aptly supplement each other.

The changes in speech of every man manifest themselves in a different way. Therefore, long before the flight there is established a psychological "passport" of the astronaut, which includes individual speech characteristics. This document constitutes a standard with which are later compared the speech characteristics

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